

INSIDE DOPE

by GEORGE F. TAUBENECK

Standard Detail
 Rugged Individualist
 Demonstration
 Double Take
 Double Trouble
 Fish Swishes
 Verdict: 'Inadequate'
 Democrat?
 Memory by Association
 Parsimony for the Parson
 Study in Scarlet
 No Branch Water
 Wedding Reception
 Success Story
 No Sense to It
 Fair Enough
 Changed Life
 Could Be
 Take Your Medicine
 Out of the Mailbag
 Christmas Woe
 The Income Tax Song
 Dog Tail

Standard Detail

Millionaire McDiamond commissioned an artist to paint a picture of his country home. The painter delivered the completed job to his wealthy client without having shown him any rough sketches.

McDiamond studied the painting in silence for several moments.

"Excellent," he adjudged finally. "The detail is good, but isn't that lighting a bit odd?"

"No, indeed. It's a faithful replica of your home at sunrise. I call it: 'Dawn at Belleigh Acres.'"

"Then there's one important detail missing. If it's dawn, my daughter would be trying to unlock the side door."

Rugged Individualist

Early Americans were real men, and no fooling. Take the old trapper who paid his annual visit to "civilization"—with a poke of gold dust, and three packs of mink and fox pelts on his sled. At the tradin' store he spied a bunch of bananas.

"What's them?" he pointed.

"They're bananas," explained the storekeeper. "Trade you even—one banana for one fox skin. Here, taste one."

"Nope," declined the trapper, "got too many tastes now I can't satisfy."

Demonstration

Way out in a far corner of Ford's vast River Rouge Plant, a new employee had been shown by his shop foreman how to steer the course of a large drill press. Intrigued by the manifold challenges of this remarkable machine, our neophyte thrust a curious finger into the device. Within a trice that digit was sliced off to the knuckle.

"Ow! Ow!" he cried, "I cut off my finger!"

Hearing the shocked cry, the foreman came running over to see what was the matter.

"For heaven's sake, how did you do it?" he gasped.

"I just stuck my finger in the machine like this," the neophyte demonstrated. "Ouch! O-o-o-o! Darn it, there goes another finger!"

Double Take

With mounting disgust the father of two grown sons listened to their debate on whether or not they should get married on their present meager salaries.

"Do you know what I was getting when I got married?" he demanded. The eldest son looked at the junior son, and both grinned.

"No, Dad," agreed the junior, "and neither did you."

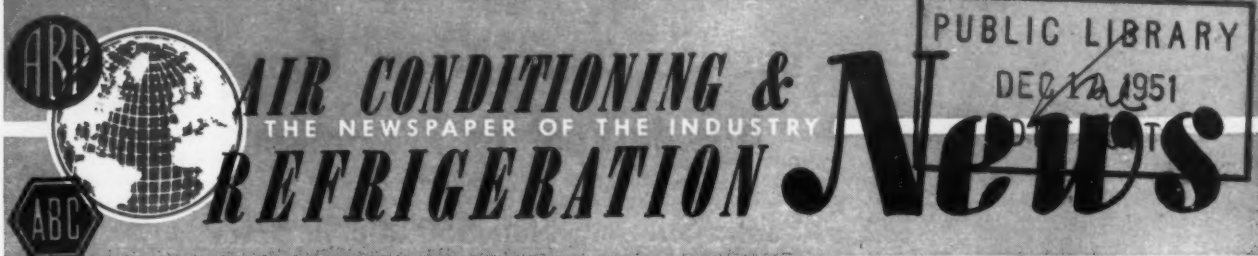
Double Trouble

John Cornbusher was invited to spend a weekend in the Big City with his metropolitan sister. So he did, enjoyed his visit, too, b'gosh. He stayed so long that his sister's husband became a bit impatient.

"Josh," suggested the brother-in-law one day, "aren't you lonely for your wife and children?"

(Concluded on Page 8, Column 1)

ISSUED EVERY MONDAY AT 450 W. FORT ST., DETROIT 26, MICHIGAN. ESTABLISHED 1926.



Vol. 64, No. 15, Serial No. 1186

December 10, 1951

Subscription Price, \$5 Per Year

Reentered as second-class matter October 3, 1936 at the post office of Detroit, Michigan, under the Act of March 3, 1879.
 Trade Mark Registered U. S. Patent Office. Copyright 1951, by Business News Publishing Co.

How Many, If Any Is Question on '52 Consumer Goods

WASHINGTON, D. C.—Barring an international crisis, will household appliances in the months ahead be in fair supply, in short supply, or out of production?

All three possibilities were seen recently by government and business officials, with the answer to the question depending upon who was doing the forecasting.

1. Alex M. Lewyt, president of Lewyt Corp., said most appliance manufacturers still had plenty of raw materials in private stockpiles. These supplies, plus allocations received under the Controlled Materials Plan, guarantee enough metals for production, he asserted.

2. But Defense Mobilizer Charles E. Wilson cautioned that the pinch on production of civilian goods "will become more obvious" in the months to come. He added: "We had accumulated a lot of fat and we are living on it."

3. And Columnist Drew Pearson said there is a possibility that most major civilian manufacturing, such as refrigerators, TV sets, and automobiles, may have to be discontinued in 1952. He declared that lagging military production means a choice of "planes vs. autos."

Pearson claimed this choice was spelled out at a recent secret meeting of defense agency chiefs by Manly Fleischmann, Defense Production Administrator. The columnist quoted Fleischmann as saying that

(Concluded on Page 4, Column 4)

Copper, Aluminum Outlook Brighter, ASRE Members Told

By C. Dale Mericle

NEW ORLEANS—Shortages of aluminum and copper will continue to plague the industry, but there is promise of improved supply in the future, perhaps by the latter part of next year for aluminum.

Even the copper situation could soon be greatly improved if the government's present policy on imports could be changed, it was deduced by those attending the Domestic Engineering Conference held during the 47th annual meeting of the American Society of Refrigerating Engineers at the Roosevelt hotel here.

This conference was devoted entirely to a discussion of using alternate materials in refrigeration production, and supplemented the usual technical sessions of the society.

(Concluded on Back Page, Column 1)

OPS May Open Way for Service Price Boosts

WASHINGTON, D. C.—The Office of Price Stabilization is planning to issue an order permitting possible price increases to the service trades covered by Ceiling Price Regulation 34 including refrigeration and appliance service firms, it was reported here.

The order would be the equivalent of orders already issued to manufacturers permitting them to adjust their costs in line with the Capehart amendment which authorizes cost adjustments up to July 26, 1951.

In the manufacturer orders, OPS has offered several optional methods of figuring these costs to fit the particular needs of different types and sizes of businesses.

Kelvinator To Introduce New Self-Defroster

'Freon' Carries Heat from Compressor to Evaporator; 2 '52 Models Equipped

DETROIT—Kelvinator engineers are today awaiting trade reaction to a completely new "Magic Cycle" high-efficiency self-defrosting system for household refrigerators, for which they claim a "new standard for simplicity and effectiveness."

The system was revealed to the company's field organization at meetings here last week. It is now being incorporated into two 1952 Kelvinator refrigerator models after extensive research and development. Showings to dealers will begin shortly.

Dr. L. A. Philipp, vice president in charge of Kelvinator engineering, said the new self-defrosting system operates by means of a simple change in the normal cold-making function of the refrigerator.

"When the Magic Cycle system is operating, instead of discharging heat in the usual way," Dr. Philipp said, "the 'Freon' refrigerant carries heat to the evaporator or frozen food chest."

"It is this natural heat from the refrigerator mechanism that accomplishes the defrosting, without complicated controls and wiring systems, or the addition of high-temperature heating elements. It operates eco-

(Concluded on Page 21, Column 1)

High Priced Paint Job! Painter Overcome In Uncooled Room

HARLINGEN, Tex.—The fact that a room in the Texas Reserve Life Insurance building here is not air conditioned may cost Hartford Accident & Indemnity Co. of Connecticut more than \$18,000.

The company has been sued for that amount by a local painter who claimed that he was overcome by exertion and suffered a permanently disabling hemorrhage while painting an un-air conditioned room in the building last April. He said the injury caused paralysis of the right side of his body.

Ed L. Sommerlatte, the painter, is asking 60% of 401 weeks pay at a \$75 a week rate and for back due installments at that rate plus 4% interest—all to be paid in a lump sum. Earlier, the insurance company was ordered to pay \$25 a week for not more than 52 weeks.

U. S. To Help Plants Short On Materials, Contracts

WASHINGTON, D. C.—Government agencies last week launched two new programs designed to help manufacturers having difficulties with materials shortages and mobilization controls. One government release on these plans stated that "manufacturers of refrigerators and other consumer durables might be helped especially" by them.

The Defense Production Administration outlined a plan to survey U. S. "idle plant production capacity" with a view toward utilizing these facilities for essential defense work.

At the same time, the National Production Authority introduced a program to assist manufacturers

(Concluded on Back Page, Column 5)

SSB Authorizes Some Increases for Outside Salesmen

WASHINGTON, D. C.—Certain increases in the pay of outside salesmen have been authorized by the Salary Stabilization Board.

The increases are allowed under General Salary Stabilization Regulation 5. They are mostly in adjustments of drawing accounts or salaries chargeable against commission and in payments made to cover the sales employee's expenses.

Under the order, the commission rate or method for determining commissions is frozen as of Jan. 25, 1951. However, the regulation permits variations in commission earnings of individual sales employees which result from normal operation of a system for commission payments on sales or business transactions which was in effect on that date.

The order also makes provision for hardships which may result to sales employees "who are dependent in whole or in part upon commissions in industries in which shortages of goods or services for civilian consumption have taken place or may take place."

"Driver salesmen"—as defined in the Fair Labor Standards Act—are

(Concluded on Page 21, Column 3)

Kelvinator 'Negotiating' For Kalamazoo Stove Div.

DETROIT—Nash-Kelvinator Corp. has been in negotiation with Kalamazoo Stove & Furnace Co. of Kalamazoo, Mich. for the possible purchase of the stove business of the concern by Nash-Kelvinator.

However, Kelvinator officials stated that the negotiations are incomplete, and that any proposed plan would have to be submitted to stockholders of Kalamazoo Stove & Furnace Co.

It is considered probable that should the proposal go through, Kelvinator would get the up-to-date range assembly plant that is part of the Kalamazoo works, with the Kalamazoo firm continuing to operate its facilities which are presently used for defense production contracts.

Cooking Range Mfrs. See Shorter Week

WASHINGTON, D. C.—Reduced controlled materials allotments for next year will bring shorter work weeks in the household cooking range industry, manufacturers told the National Production Authority at a recent meeting.

Speaking for the industry, the household cooking ranges and stoves industry advisory committee, pointed out that only by drawing on their inventories of materials to supplement their allotments have manufacturers kept layoffs in this quarter to a relatively low level.

Committee members volunteered to furnish specific information on the relationship of allotments to employment.

Harry J. Holbrook, director of NPA's consumer durable goods division, had expressed concern with finding a way to forecast the effect of future allotments upon employment and the impact of layoffs upon the communities concerned.

However, he predicted that second-quarter allotments for 1952 are more likely to be trimmed even below the first-quarter level rather than raised. For the first quarter, cooking stove manufacturers have been allotted 50% of their base period use of car-

(Concluded on Page 4, Column 4)

Admiral Seeking To Purchase Norge Division

If a Deal Goes Through, Norge Would Be Division With Present Distributors

CHICAGO, Dec. 7—Admiral Corp. is negotiating for the purchase of the Norge Div. of Borg-Warner Corp., and if the negotiations go through it would represent one of the largest deals of this kind ever to be made in the major appliance field.

However, spokesmen for both companies point out that "no deal has been made as yet," and neither company would disclose any details, such as whether it would be an outright purchase or an exchange of stock, or some possible other form of amalgamation.

However, a Borg-Warner statement said that "if and when such a sale should be consummated one of the stipulations is that the Norge manufacturing and sales organization be maintained as a separate division by the purchaser. This includes, of course, the aggressive Norge distributors who have helped the Norge line of household appliances to achieve prominence in their fields."

Admiral is a producer of refrigerators, home freezers, dehumidifiers, electric ranges, television and radio receivers. The Norge line includes refrigerators, home freezers, gas and electric ranges, conventional and automatic washers, water heaters, and water coolers.

Norge operates five plants; at Muskegon and Muskegon Heights, Mich.; Chattanooga, Tenn.; and Effingham and Herrin, Ill.

If the Norge Div. is sold, Borg-Warner would be almost entirely out of the consumer goods field. Its principal other products include automotive parts, specialty steels, fabricated steel products, agricultural machinery components, parts for the aviation industry, and industrial power transmission devices. It is said that the Norge Div. has normally accounted for 20% of the corporation's total annual sales.

2-Refrigerator Homes Seen as Vital to Continued Sales

EVANSVILLE, Ind.—If domestic refrigeration manufacturers are to avoid saturation of their market, they must "make the two-refrigerator household as familiar as the two-car garage," in the opinion of W. Paul Jones, president of Servel, Inc.

"More than 40 million of the 45 million families in this country already have automatic refrigeration, so that one year's normal production—about 5 million units—would use up virtually all the new-owner potential," Jones told a sales meeting recently.

"But," he declared, "a virtually untapped field exists in the millions of families which now own a refrigerator but are finding it unable to cope with their increasing need for food storage space."

Increases in the use of frozen and fresh food, coupled with increases in home entertainment, are taxing the capacity of the household refrigerator, Jones asserted, adding:

"While the industry has attempted to keep abreast of these increased

(Concluded on Page 4, Column 5)

IN THIS ISSUE

Dealer's Dream House Promotes Appliances	2
Better Dealer-Contractor Relations—How To Have Them	6
Chief Causes for Service Calls	10
Price Cutting, Wild Promises Cut Commercial Dealer's Profits	13
Analytical, Creative Estimates Will Give Air Conditioning Contractor an Edge Over Ordinary Bidders	14
Temperature In RCA's Test Chamber Ranges from -85° F. to 185° F.	18
What's New	16 & 17
Refrigeration Problems—Free Service Reserve	20
Patents	22
Government Contracts	22
Current Literature Available	23



INTERESTED persons line up to go through Edward Rosenbaum's own home (above) which he opened to the public. An appliance dealer, Rosenbaum demonstrated his appliances as a promotion stunt.

NATURAL GAS heating plant (left) and air conditioning unit made by Carrier Corp. provides year-round comfort.

Dealer's Own 'Dream House' Hits Jackpot as Promotion

Public Showing Nets \$50,000 In Sales



RIBBON-CUTTING ceremonies were presided over by Betty Furness, left center, Rosenbaum, Mrs. Rosenbaum, and H. C. Stephenson, Westinghouse representative.

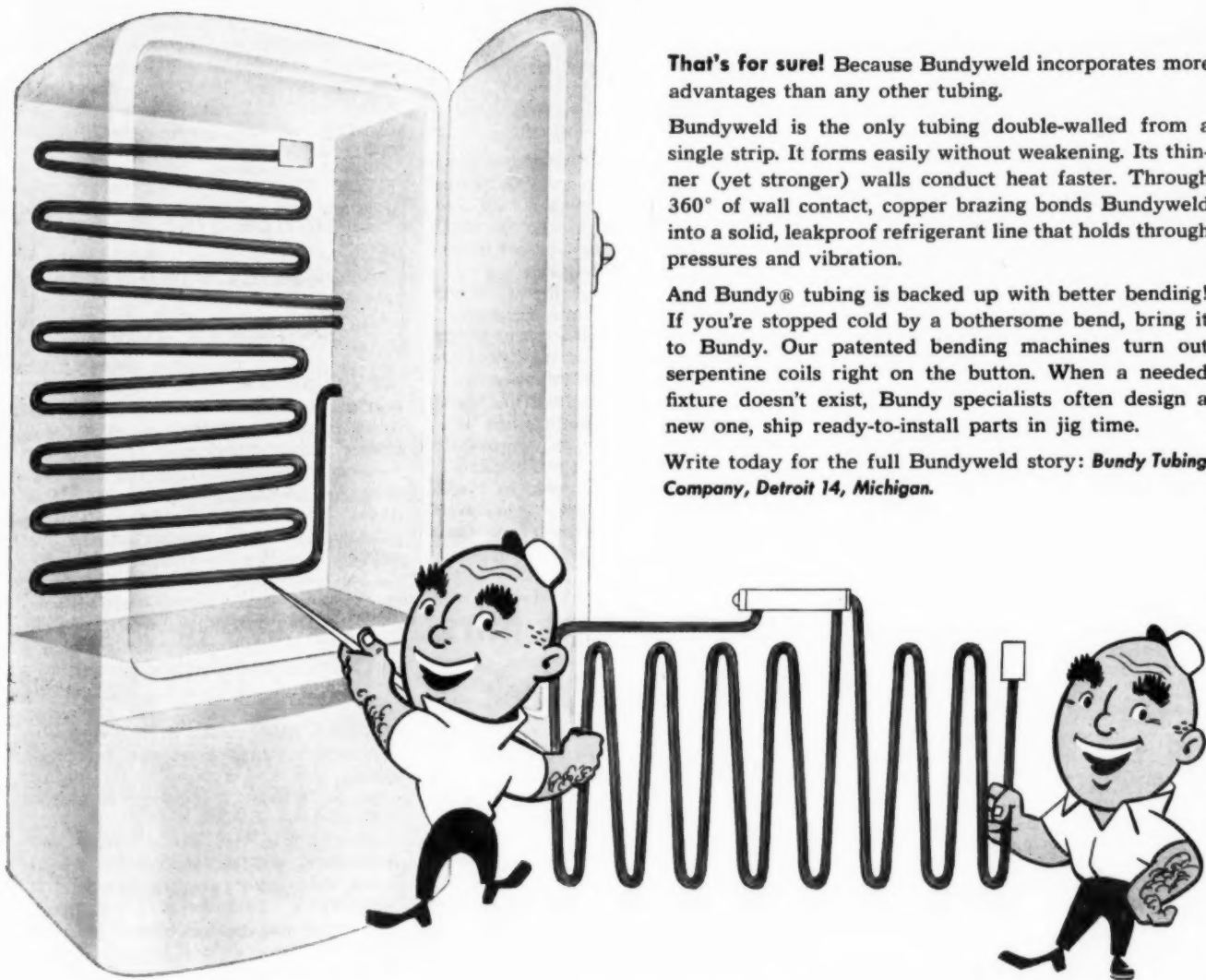


GATHERING in the ultra-modern kitchen are Rosenbaum, Earl Stearns, Westinghouse distributor sales manager Betty Furness, and Stephenson.



MERCHANDISE CERTIFICATE is awarded Mrs. Beulah Murphy by Rosenbaum. Mayor Milton Tibbitts looks on. More than \$1,500 worth of merchandise was given away at the opening.

Bundyweld... backbone of better refrigeration



That's for sure! Because Bundyweld incorporates more advantages than any other tubing.

Bundyweld is the only tubing double-walled from a single strip. It forms easily without weakening. Its thinner (yet stronger) walls conduct heat faster. Through 360° of wall contact, copper brazing bonds Bundyweld into a solid, leakproof refrigerant line that holds through pressures and vibration.

And Bundy® tubing is backed up with better bending! If you're stopped cold by a bothersome bend, bring it to Bundy. Our patented bending machines turn out serpentine coils right on the button. When a needed fixture doesn't exist, Bundy specialists often design a new one, ship ready-to-install parts in jig time.

Write today for the full Bundyweld story: **Bundy Tubing Company, Detroit 14, Michigan.**

Bundyweld Tubing

DOUBLE-WALLED FROM A SINGLE STRIP

WHY BUNDYWELD IS BETTER TUBING



Bundyweld starts as a single strip of basic metal, coated with a bonding metal. Then it's...



continuously rolled twice around laterally into a tube of uniform thickness, and



passed through a furnace. Bonding metal fuses with basic metal, presto—



Bundyweld... double-walled and brazed through 360° of wall contact.



NOTE the exclusive patented Bundyweld beveled edge, which affords a smoother joint, absence of bead and less chance for any leakage.

SIZES UP TO 3/8" O.D.

Bundy Tubing Distributors and Representatives: Cambridge 42, Mass.: Austin-Hastings Co., Inc., 226 Binney St. • Chattanooga 2, Tenn.: Peirson-Deakins Co., 823-824 Chattanooga Bank Bldg. • Chicago 32, Ill.: Lapham-Hickey Co., 3333 W. 47th Place • Elizabeth, New Jersey: A. B. Murray Co., Inc., Post Office Box 476 • Philadelphia 3, Penn.: Rutan & Co., 1717 Sansom St. • San Francisco 10, Calif.: Pacific Metals Co., Ltd., 3100 19th St. • Seattle 4, Wash.: Eagle Metals Co., 4755 First Ave. South • Toronto 5, Ontario, Canada: Alloy Metal Sales, Ltd., 881 Bay St. • Bundyweld nickel and Monel tubing is sold by distributors of nickel and nickel alloys in principal cities.

GLENS FALLS, N. Y.—As long as a fellow is in the business of providing better living through modern appliances, there is no reason why—when he builds and outfits his own "Dream House"—that he shouldn't get the best possible promotional effort out of it.

That's the way Ed Rosenbaum of Niagara Electrical Equipment Co. here figured it; and after a grand opening and three-day open house at "The House That Ed Built" the results were pretty much in line with what he had hoped for.

Some 4,300 people saw the house and its furnishings, over 12,000 pieces of Westinghouse sales literature alone were distributed, and Rosenbaum expects that the promotion will have netted him added sales of \$50,000 between the time of the opening (Nov. 1-3) and Christmas.

Considerable showmanship went into the "grand opening" with a parade through the city to the site of the house and a ribbon cutting by Betty Furness, star of Westinghouse "Studio One" television program. The big attendance was achieved in spite of a near blizzard on opening day, and the adverse weather conditions cut attendance only in that some people wouldn't wait in line outside the house in the snow and cold.

This dealer's promotional effort—his own idea—wasn't achieved by an overnight brainstorm. In fact, it was a logical outgrowth of a project carried out by Rosenbaum and his wife five years ago when they opened "The House That Was," which demonstrated, in a time of shortages, what could be done to remake a 53-year-old house into the "House That Is."

Thus, it was something of a "natural" that the Rosenbaums should conceive of their own new residence as the "House of the Future" incorporating all the latest ideas for modern living, and to exploit it, as far as possible, as a

showcase for the things that they sell.

"Electrical appliances and fixtures are really best demonstrated by being shown in their natural location—a home," Rosenbaum says.

"The opening and the open house gave us the chance to dramatize for our neighbors the comforts and conveniences that can come with electrical living."

"The House of the Future" is equipped with a remote control wiring system providing continuous lighting throughout, a high fidelity system with built-in ceiling speakers in four rooms, and a frequency door opener on garage overhead doors.

It features a complete Westinghouse kitchen which include a 9-cu. ft. "Frost Free" model refrigerator, deluxe range, dishwasher, waste-away, Laundromat, and drier.

In addition, the home is equipped with an intercommunication system from master bedroom to every room in the house, new-type recessed spot lighting, selector control for every light in the house, and master controls in the kitchen and in the master bedroom.

Housed in the den of the house is a 24-in. Westinghouse television set with record player, high fidelity sound, and AM-FM radio all housed within a disappearing door panel. There are built-in speakers in the living room and on the patio.

The house is the first in Glens Falls ever to be equipped with a natural gas Carrier heating plant and air conditioning unit with specially designed air ducts.

The public visited the house from 2 to 5 p.m. and from 7 to 9 p.m. on the four days on which the open house was held.

Grand opening was preceded by heavy newspaper and radio advertising. A total of \$1,500 in merchandise was given away at the opening, together with 500 \$50 merchandise certificates.



Lowest BTU cost.
It saves space and assures uniform temperatures.
In six sizes, 3,500 BTU's to 20,000 BTU's per hour

CURVETTE

by **KRAMER**

Write for Bulletin C-192

KRAMER TRENTON CO. • Trenton 5, N.J.

No Cold Shoulder If You Buy a Refrigerator, You Get a Fur Coat, Too

MONTREAL, Que., Can.—Beauregard and Pickwick Stores came up with the newest wrinkle to stimulate appliance sales—a fur coat free with every refrigerator purchase.

The stores also gave customers the choice of this bonus merchandise if they had no use for the fur coat: Ironer, electric floor polisher, vacuum cleaner, or radio. The customer paid only for the refrigerator.

Launching the promotion with a large newspaper advertisement, the stores featured a "Shop at Home" service. The prospect was invited to call the store and have a bonded representative visit her home with all information, at no obligation.

General Refrigerators To Move to Larger Quarters

NEW YORK CITY—General Refrigerators Corp. has purchased a Chase Bank building and will move to the larger quarters after the first of the year, it was announced by L. J. Randall, vice president.

He said the company will occupy the entire building at 2011 First Ave., thereby enabling it to consolidate all operations under one roof. The company is presently located at 678 Broadway.

"This move was necessitated by the greatly increased volume of business in the retail department's activities in the metropolitan New York area, as well as the wide acceptance of our 'Ful-Vision' display cases and freezers throughout the country and abroad," Randall stated.

Anderson & Wagner Request for Stainless Steel Denied by NPA

WASHINGTON, D. C.—A request by Anderson & Wagner, Inc. of Los Angeles for permission to manufacture soda fountain equipment using 18.8 stainless steel was denied by the National Production Authority, the NPA announced recently.

The denial of the appeal was made on the basis of no unreasonable hardship to the company.

Linen Set Offered as Bonus In Electric Washer Promotion

ERIE, Pa.—Reliable Radio, Inc. here came up with a new gimmick in bonus merchandise on electric washer promotion.

The store offered a 14-piece linen set free with each electric washer purchase.

The store put a value of \$15.95 on the linen set, which included two sheets, two large bath towels, two hand towels, and six kitchen towels, all attractively packaged.

Edelmuth Becomes V. P. of Grand Home Appliances

CLEVELAND—David L. Edelmuth, former vice president in charge of sales of Artkraft Mfg. Corp., has been appointed vice president and general manager of Grand Home Appliances Co.

The appointment was announced by James Mitchell, president of Grand Industries, Inc. The company operates Grand Home Appliances as well as Cleveland Foundry Co. and Grand Enamelling Co.

Edelmuth at one time was general sales manager of Grand Home Appliances.

Previous to that he was an appliance buyer in the department store field.

DTA Studies Need for More Refrigerated Space

WASHINGTON, D. C.—A study to determine the amount of additional refrigerated storage space that will be needed to meet anticipated requirements of the defense mobilization program is being made by the Defense Transport Administration, according to James K. Knudson, DTA chief.

Stressing that refrigerated storage plays an essential role in the defense effort, Knudson said the study is being conducted because adequate storage facilities cannot be improvised through utilization of existing structures and many months are required for new construction.

Results of the study will be publicized, Knudson said.

He also said that every effort will be made to induce the industry to construct by the use of private capital any additional facilities that may be required, thus avoiding the necessity for government construction.

Costly Ice Water Federal Marshals Seize Adulterated Chickens

BUFFALO — Federal marshals seized 3,600 frozen chickens located in a plant of the Merchants Refrigerating Co. here.

The action followed filing of a libel in Federal Court by U. S. District Attorney George L. Grobe charging the chickens, shipped Aug. 9 by a Fairview, Okla. company "to the account of the Great A & P Tea Co." here, were "adulterated in that examination shows the birds are covered with a coating of ice."

"Each bird is packaged in a plastic bag," the libel continues, "and is in violation of interstate commerce laws in that water, now in the form of ice, has been added thereto and packed to increase bulk or weight."

The U. S. Food & Drug Administration, whose Buffalo office recommended the seizure, said "consumers should not have to pay chicken prices for ice water."

B.W. Kirby Buys Bal-Air Corp.

COLUMBIA, S. C.—B. W. Kirby, of Columbia, has bought Bal-Air Corp., which manufactures air conditioning and heating units in Nashville, Tenn. and has become president and general manager of the firm, it was announced here recently.

Kirby owns Bal-Air with John Wilson, of Nashville. They acquired the business from Clarence Riegel, of Nashville, who sold his interest to devote more time to another firm he owns.

Kirby announced that a branch office of the corporation will be established in Columbia. The firm includes 15 representatives, 66 distributors and representatives in three foreign countries.

"Selling will be direct to air conditioning distributor contractors and to the large chain organizations that have their own servicemen and installation crews," Kirby further indicated.

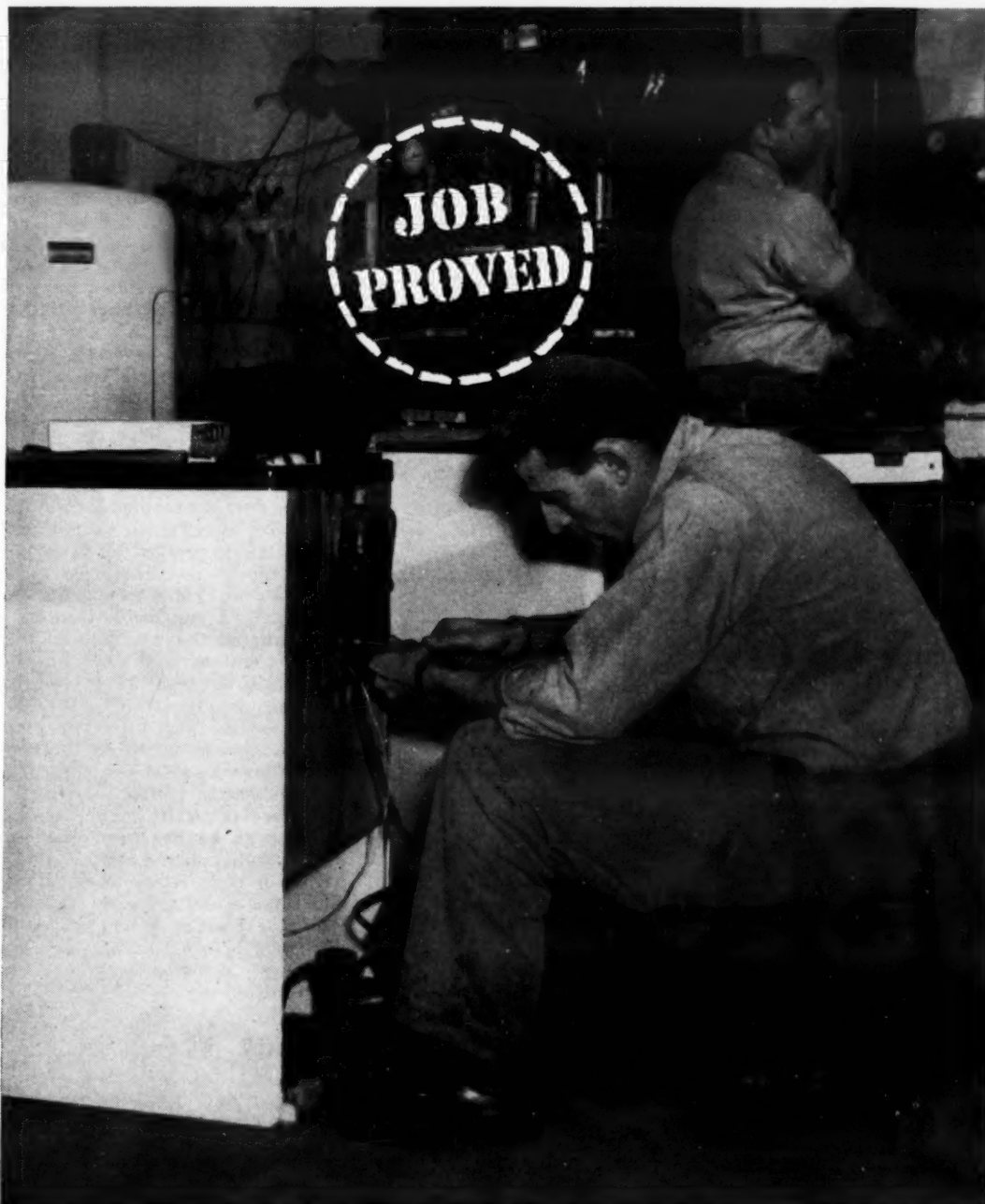
Ohio Legislature Defeats Bill To Put Subcontractors Under General Contractors

COLUMBUS, Ohio—A bill which would have placed subcontractors on most state construction under the supervision of general contractors, instead of under direct state supervision as they are now, was defeated in the state legislature after protesting telegrams were sent to all House members by the Ohio Sheet Metal Contractors Association.

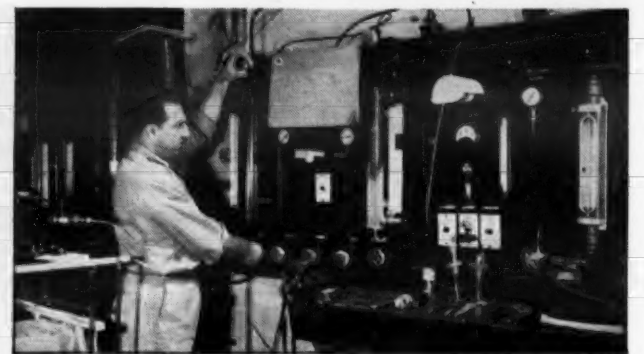
The bill proposed to increase the limitation on separately awarded contracts for air conditioning, ventilating, heating, and similar work on state buildings from \$1,000 to \$50,000.

During Senate committee hearings on the bill, the limitation was cut to a reasonable \$5,000 in view of present increased materials and labor costs.

But a House committee restored the \$50,000 limitation.



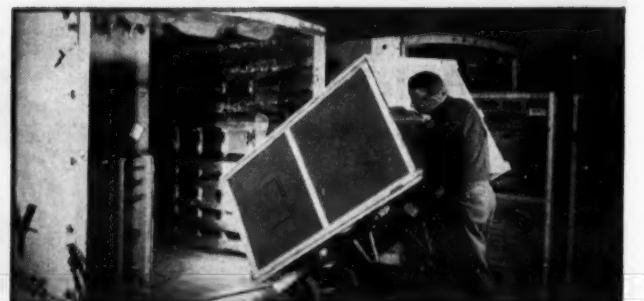
BY USING Suniso Refrigeration Oils exclusively, Judson C. Burns, Philadelphia, has spared himself emergency calls due to oil trouble. This has left him free to continually take on new contract accounts.



HERMETICALLY sealed compressor at extreme left receives new charge of Suniso under pressure from 55-gallon drum on floor above. The charging board measures the exact charge required, delivers it moisture-free and clean.



SOME refrigeration oils deposit wax in the capillary tubing of domestic units, requiring them to be dismantled and cleaned. Judson C. Burns prevents such costly callbacks by recharging exclusively with wax-free Suniso.



BECAUSE OF the reliability of Suniso Oils, units like the Crosleys being loaded on Burns' truck for delivery remain trouble-free for years. In fact, some of his units have required only routine maintenance over a period of 24 years.

TROUBLE-FREE PERFORMANCE OF SUNISO OILS HELPS BUILD BIG SERVICE-SHOP BUSINESS

For 24 years, complete reliance on Suniso has paid off for the service department of Judson C. Burns, one of Philadelphia's largest distributors. Today Burns keeps a staff of 8 commercial service men, 8 shop service men, and 4 installation crews profitably busy. They are able to service nearly 1,000 commercial and industrial units a year because they are not handicapped by a multitude of callbacks. Some units, originally charged with Suniso, have been operating since 1926 with never a trip to the shop.

Service men everywhere have come to expect such performance of Suniso Oils. Suniso Oils flow back easily to the crankcase from the cold side of the refrigeration system; they do not deteriorate and turn to gum when mixed with Freon or other modern refrigerants; being practically wax- and moisture-free, they do not clog or freeze in capillary tubes and expansion valves. For a free Suniso Specification Card, call your jobber or write Department RN-12.

SUNISO REFRIGERATION OILS

SUN OIL COMPANY, PHILADELPHIA 3, PA. • SUN OIL COMPANY, LTD., TORONTO AND MONTREAL



AIR CONDITIONERS

3 to 50 Ton Units complete
with evaporative condensers

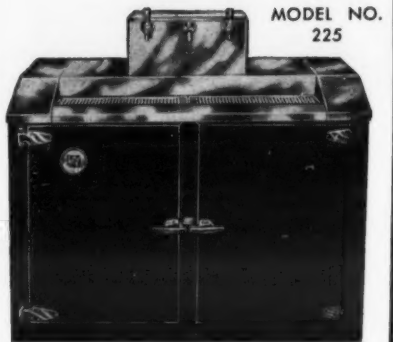
BAL-AIR MANUFACTURERS

P. O. BOX 576
COLUMBIA, S. C.

AGAIN....as always LA CROSSE gives most for the money!



MODEL NO. 313



MODEL NO. 225

DRY STORAGE BOTTLE COOLER

Value packed with features that assure complete customer satisfaction, this popular LA CROSSE BOTTLE COOLER has the ease of well insulated glide away doors, fingertip controlled... the convenience of spacious 27 case capacity, the beauty of fine stainless steel or black baked enamel and large c.f.m. for fast, thorough cooling. Available in 4, 6, 8, 10 ft. models.

ELECTRIC DIRECT DRAW

La Crosse leads the way to tastier tap beer. REFRIGERATED FAUCETS keep beer at just the right temperature from keg to glass. No more foaming waste... no morning draw off... no more "profit pirates." Saves those wastes expected of ordinary draw equipment and serves a clear, sparkling glass of beer every time. Stainless steel or black baked enamel.

MORE PROFITS FOR YOU IN '52
BE A LA CROSSE DEALER
WRITE TODAY FOR COMPLETE DETAILS

LA CROSSE COOLER CO.

FACTORY AND GENERAL OFFICES: 2801 LOSEY BLVD. S., LA CROSSE, WIS.

EXPORT OFFICE: 80 BROAD STREET, NEW YORK CITY

CABLE ADDRESS: EXIMPORT

OPS Reminds Retailers Markup Reports Under CPR-7 Were Due Nov. 14

WASHINGTON, D. C.—The first report of initial percentage markups by many retailers who price under Ceiling Price Regulation 7, was due on Nov. 14, 1951, the Office of Price Stabilization stated recently. Together with this reminder, the agency provided a clarification as to filing and reporting requirements under CPR 7.

Widespread misunderstanding on the part of retailers as to the three months period on which they must report to OPS when their markups during that period exceeded those reported for the base period exists, the agency indicated.

For retailers who keep records on a quarterly basis, this report covers the first complete quarter AFTER May 31, 1951, the effective date of CPR 7. The regulation does not call for reports on a complete quarter of their sales operation BEFORE May 31, 1951, OPS added.

As a check on the effectiveness of CPR 7, the regulation requires merchants to file reports with OPS whenever their current markups exceed those in the base period.

Retailers who keep records on a quarterly basis are required to file a report on a three months basis whenever their current initial percentage markups or gross margins exceed those that they reported for their base period. Those who keep records on an annual basis are required to make this report on an annual basis.

James Goodwin Resigns From Temprite Products

DETROIT—James J. Goodwin has resigned as sales manager of Temprite Products Corp., Birmingham, Mich., manufacturer of liquid cooling devices.

Goodwin said he will announce his future plans at a later date.

He had been with Temprite for the past 17 years, as head of the engineering laboratory, assistant sales manager, eastern sales manager, and sales manager.

Prior to his association with Temprite, Goodwin had been with the factory engineering staff of Copeland Refrigeration Corp.

Appliance Outlook--

(Concluded from Page 1, Column 2) consumer durables manufacturers on the average have already cut back to 60% of their 1950 production rates.

Then Fleischmann is said to have warned: "Consumer durables cannot be reduced more than an additional 10% and still produce at a profit." Nor, he hinted, according to Pearson, would a 10% cut solve the material shortages problem.

Lewyt asserted that there will never be a critical shortage of consumer appliances in the present part-defense, part-civilian economy. He said such a shortage could be created only by an international crisis.

But he does think that because of the copper shortage, many manufacturers will have to switch from producing full appliance lines to concentrating on one or two items in a line. He sees several lower-priced appliances being taken off the market before the end of the first 1952 quarter.

Lewyt pointed out that although production of vacuum cleaners this year is down about 20% from 1950 levels, some companies, including Lewyt, have maintained output with use of alternate production materials. He said Lewyt has used fiber glass successfully in place of hard-to-get metals without sacrificing quality.

He predicted that cleaners will be tougher to get by mid-1952 than for many years, but will not be in critically short supply.

While forecasting a tighter pinch on civilian goods output in the coming months, Wilson stated that after the mobilization effort reaches a peak, "we will shift from quantity production to quality production, invention, and improvement."

"We can then return to a civilian production equalling and, in some respects exceeding, the production we enjoyed before Korea, which was the highest in our history."

Shorter Week--

(Concluded from Page 1, Column 4) bon steel, 40% of copper wire mill products, and 35% of brass mill products, foundry copper, and aluminum.

The committee opposed any tightening of the flexibility provision of M-47B under which a manufacturer may switch his allotment from the manufacture of one product to another listed in the same group to meet market demand.

NPA pointed out that it may be necessary to alter the flexibility provision to preclude the use of the higher allotments granted for production of more essential products to production of less essential products, for which smaller first-quarter allotments were made.

The committee recommended that: 1. Industry be permitted to use conversion steel in excess of allotments made under the Controlled Materials Plan.

2. NPA extend the carry-over period under direction 7 to CMP Reg. 1 from the present seven days to 30 days. (NPA has since extended this time to 15 days.)

3. A stricter deadline be imposed upon industry's filing of CMP application forms and NPA's processing of this information into allotments.

Discussing materials, manufacturers agreed that the nickel supply is the chief limiting factor in the production of electric ranges. They reported that electric range manufacturers are switching over from nickel to 2512 stainless steel for sheathing in electric heating elements.

Engineering difficulties have been experienced by one firm in changing from copper tubing to seamless steel tubing.

Penn Switch Co. Changes Name to 'Penn Controls'

GOSHEN, Ind.—The firm name of Penn Electric Switch Co. has been officially changed to Penn Controls, Inc., according to Albert Penn, president.

Explaining the name change, Penn stated:

"For some years we have considered changing the name of our company to describe more accurately the character of our business."

"Years ago the name 'Penn Electric Switch Co.' was descriptive of the products we manufactured. However, over the years our product line has grown to include many items other than electric switches. During this time our products have become generally known to our customers as 'Penn Controls.' Therefore, all necessary steps have been taken to officially change the company name to Penn Controls, Inc."

The announcement emphasized that the name change will not in any way alter management, general policies, or operation of the company; nor will it have any effect on contracts, agreements, sales policies, or purchase orders.

Penn Controls manufactures automatic controls for heating, refrigeration, air conditioning, gas appliances, engines, and pumps and air compressors.

2-Refrigerator Homes--

(Concluded from Page 1, Column 5) needs, the problem is still acute. Stretching the size of home refrigerators from 6 cu. ft. to an average of 8 or 9 cu. ft. today has not been enough.

"The only criticism to be found with much of the equipment in use today is that it is too small for current needs. If this equipment is supplemented with a new refrigerator, all of the present and foreseeable future family needs will be met and our sales markets will be broadened considerably."

for more
Ice Maker
SALES

... FILTRINE
"Taste - Master"
Demineralizer
in the water line

Cuts Service
No Tastes
Clear Ice
Fits All Makes
Small Cost

Crystal ice... without sludge-forming rust, sediment, mineral residue... chlorine taste... "milkiness." Ends major source of service calls. Write for new literature.

Filtrine
"Taste - Master"
Demineralizer
in the water line

Crystal ice... without sludge-forming rust, sediment, mineral residue... chlorine taste... "milkiness." Ends major source of service calls. Write for new literature.

Filtrine
"Taste - Master"
Demineralizer
in the water line

FILTRINE MANUFACTURING CO.
BROOKLYN 5, N. Y.

for all tubing or pipe
Handy Tube Bender

Sizes To Bend
1/2" O. D. to
1 1/2" O. D.

NO KINKS
OR FLATS
PORTABLE
AT LEADING SUPPLY HOUSES

HOLSCLAW BROS., INC.
408 WILLOW RD. - EVANSVILLE, IND.

WALK-IN COOLERS
AVAILABLE FOR
IMMEDIATE DELIVERY

6' x 6' x 6 1/2' Walk-In Only..... \$2.5
6' x 6' x 6 1/2' Self-Contained 1/2 H.P. \$4.3
6' x 6' x 6 1/2' Self-Contained 1/2 H.P. \$4.5

Loudon
MINNEAPOLIS

COMMERCIAL REFRIGERATION EQUIPMENT
2524 27th Avenue South, Minneapolis, Minn.

JE

Made Better
to Serve Better

A SERIES
OF DEPENDABILITY
FEATURES

No. 3
LONG-LIFE

Coil life is reduced by high operating temperatures. JE Solenoid Valves are designed with cool coils—operating far below the allowable temperature rise established by the Underwriters' Laboratories.

JE

SOLENOID VALVES

HAVE 5 MAJOR FEATURES
OF DEPENDABILITY

- 1 Tight Seating—No bubble tolerance
- 2 Simplicity—Only two moving parts
- 3 Long Life—Cool Coils
- 4 Durability—All corrosion-resistant materials
- 5 Opening Pressure Differential—higher than most others on the market.

May we submit samples for your test and approval?
Write today for details.

JACKES-EVANS MANUFACTURING COMPANY
CONTROLS DIVISION

4427 Geraldine Ave. • St. Louis 15, Mo.

Is Hooking Up Water Softener Plumbing? Omaha Firm Asks Court

OMAHA, Neb.—District Court here has been asked to decide whether plumbing, as defined in the city plumbing ordinance, includes hooking up a water softener and, if so, whether the ordinance is constitutional.

Ralph Heaton, head of the Lindsay Soft Water Co. here, brought suit in the court for a declaratory judgment to determine whether the firm must hire master plumbers to install its water-softening devices.

Judge James M. Patton granted a temporary restraining order against the city's interfering with the firm's workmen until a hearing on the request for a temporary injunction could be held.

Thomas C. Quinlan, attorney for the firm, said his client does not object to paying a \$1.50 inspection permit fee, but does question the right of the city to say that only a master plumber may obtain such a permit.

Adherence to city law would force the company either to hire a master plumber for each job or to put one on permanently. This adds about \$50 to the cost of each installation, the attorney stated, although installation of water softeners is "a very simple process."

William D. Noyes, city commissioner, declared the city would put up a spirited defense to the suit. Connecting water softeners should be done only by a plumber, he asserted, because it involves tapping into the city's water lines.

Haesloop's Package Deal Has \$407 Value for \$288

ELMIRA, N. Y.—An unusual Christmas promotion in which a refrigerator, vacuum cleaner, and 16-piece cutlery set were offered in a package deal for \$288 was employed by Haesloop's Appliances to boost December volume.

Hailing it as "The Most Amazing Appliance Offer Ever Made," Haesloop's launched the event with a full page newspaper advertisement. The offer was limited to a week's time and was on a first come, first served basis.

Here's the way Haesloop's lined up the deal. The customer had to have an old refrigerator, in good operating condition, to trade in. It offered in the package a \$287.75 refrigerator, an \$89.95 vacuum cleaner, and a \$29.95 cutlery set, with total value of \$407.65, for \$288.

Copy said: "Read this twice. At first you won't believe it. Most fabulous appliance value in Elmira's history. Every day, every month, every year, Haesloop's have always given you more appliance value for your money. But now, during this history-making limited offer, you can benefit by the Haesloop Santa Claus and really have a three-fold Merry Christmas at a saving that will astound the nation."

NEMA Sections Continue Appliance Advertising, Promotion Campaigns

ATLANTIC CITY, N. J.—Advertising and promotion programs of the electric range, electric water heater, and farm and home freezer sections of the National Electrical Manufacturers Association have been approved for 1952, according to action taken at fall meetings of the three sections.

In formulating plans for the continuation of activities at the architect and builder, home economist, school management, plumber, and dealer levels, the sections felt that, even though production of major electric appliances faced an uncertain future, these programs should be carried on.

This indirect approach to the consumer, begun many years ago, results in essential education in the advantages of electric appliances, the sections indicated.

USE THE COUPON!

For "easy-to-get" product information... use coupon in the "Information Center" form.

What's In a Name?

Plenty, Says Advertising Woman, Especially to Lady Customer

BUFFALO—Some sage advice for owners of appliance stores and other retail establishments which cater to women customers was handed out here by Mrs. Jean Wade Rindlaub, 1951 "Advertising Woman of the Year" and a vice president of Batten, Barton, Durstine & Osborn.

Addressing a "Ladies Day" luncheon of the Greater Buffalo Advertising Club, Mrs. Rindlaub said the advertising business—particularly in its appeal to women—is "deeply concerned about the harm that can be done at the point of sale" by discourtesy, indifference, or ineptitude.

"A woman store customer," said Mrs. Rindlaub, "wants to be loved. She does not want to be growled at."

"Your woman customer," she went on, "wants someone to know her name and use it. She wants you to smile."

Gas and Electric Appliance Sales Groups Join Forces To Learn New Selling Methods

CINCINNATI—An unusual sales meeting recently attracted 518 electric and gas appliance dealers and salesmen to the Hartwell Country Club where six merchandising executives told them how to sell appliances in the present tough market.

It was said to be the first time in a major city that gas and electric appliance sales groups have been brought together in such a session.

Designated as a "Jam Session," it was sponsored by the Cincinnati Gas & Electric Co. (which sells no appliances), the Cincinnati Electrical Association, Greater Cincinnati Gas Range Association, Cincinnati Water Heater Association, and local wholesalers, jobbers, and manufacturer agents in the gas and electric field.

The "Jam Session" got under way with an 8 a.m. breakfast, after which Ruth Bailey, a radio and television actress, introduced the speakers.

These and their subjects were:

Budd Gore, advertising manager, Marshall Field Co., Chicago, on "How We Can Sell With Newspapers—Now"; A. Ellis Frampton, advertising manager, Hammett Paper Co., Erie, Pa., on "How We Can Sell With Direct Mail—Now"; R. C. Kash, editor, *Display World*, Cincinnati, on "How We Can Sell With Display—Now"; and C. T. Burg, vice president in charge of sales, Iron Fireman Mfg. Co., Cleveland, "How We Can Sell With People—Now."

Following luncheon, Murray Grabhorn, managing director, National Association of Radio & Television Station Representatives, Inc., New York City, spoke on "How We Can Sell With Radio and TV—Now."

The meeting was closed by Fred Smith, vice president in charge of industrial relations, William Powell Valve Co., Cincinnati.

NPA Sets Dec. 15 Deadline For Filing 2nd-Quarter Construction Applications

WASHINGTON, D. C.—Dec. 15 is the deadline for filing of applications by builders for construction projects in the second quarter of 1952, the National Production Authority has announced.

The agency said those who have not received NPA approval for construction projects in the fourth 1951 quarter and the first 1952 quarter should reapply for the second quarter. But the NPA does not look for an improvement in the tight materials situation before the latter half of the next year.

Only 37% of the commercial, community, and institutional projects proposed by builders in the fourth quarter of this year were approved by the NPA. Even fewer projects will be authorized in the first 1952 quarter, the government agency indicated at the same time.

Frigidaire's Fifteen Fundamentals

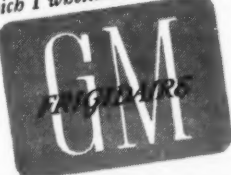
A Realistic Program to obtain greatly expanded volume for both Field and Factory

1. Give major attention to all kinds of refrigeration products for which a volume market now exists or can be developed.
2. Devote intensive effort to all other products in our line in proportion to the importance of each.
3. Add new products that logically complement our present line, and where we can contribute important improvements.
4. Continually seek ways to improve all Frigidaire products to keep them first in quality, utility and appearance.
5. Price all products competitively, quality and service considered.
6. See to it that Frigidaire merchandising plans, sales helps and advertising are outstanding and always reflect the high ethical standards under which we operate.
7. Give the best service of anyone in our industry.
8. Have in each market the proper number of quality dealers to obtain Frigidaire's proper share of available volume, and at the same time to provide a profitable potential for each Frigidaire dealer and his salesmen.
9. Help potentially good dealers develop into real quality dealers—wherever feasible build instead of change dealers.
10. Give full recognition to the important way in which our success and that of our dealers depend upon the Retail Supervisor, Salesman, Service Manager, and Serviceman.
11. Do the best training job in our industry on both sales and service.
12. In every way, keep as our goal the building of even greater dealer and customer good will.
13. Try to enhance and improve our reputation for integrity. Resolve that more and more the name Frigidaire shall stand for honest, sincere and capable handling of all situations.
14. Keep an open mind and really try to find out and provide what the public and field organization want.
15. Recognize more than ever the importance of teamwork between all members of our organization—all Factory and Distributing Personnel, Dealers, Servicing Organizations, Supervisors, Salesmen and Servicemen.

FRIGIDAIRE DIVISION • GENERAL MOTORS CORPORATION

There is no more trustworthy path to achievement than a code of sound principles sincerely conceived and courageously followed—such as these Fifteen Fundamentals to which I wholeheartedly subscribe.

W. M. Robert
General Manager
R. H. Polen
Works Manager
W. J. Schuller
Chief Engineer
L. E. Hartzell
Manager Material Control Division



W. M. Robert
General Sales Manager
W. J. Schuller
Divisional Controller
L. E. Hartzell
Manager Industrial Relations Division
C. W. Mullen
Manager Inspection Division

We invite you to read these 15 fundamentals carefully.

For years they have guided all Frigidaire operations. They tell, in a few words, why the Frigidaire Franchise is held in such high regard throughout the appliance industry.

12 Ways To Better Relations

Dealer-Contractors, Manufacturers Need Closer Cooperation In Order To Avoid Problems Created by Scarcities, Knoff Says

CHICAGO—"Better trade relations between manufacturers and contractors can best be brought about by a better understanding of the problems facing each."

So declared J. F. Knoff, general sales manager of Chrysler Corp.'s Airtemp Div., in addressing the 6th annual convention of the Refrigeration & Air Conditioning Contractors Association.

Knoff first outlined dealer-contractor problems and manufacturer problems. He then presented his answer to some of the mutual problems.

Dealer-Contractor Problems

Dealer-contractor problems were listed as including the following:

- "1. Availability of equipment required to meet specifications.
- "2. Ability to purchase major portion of all equipment required from as few sources as possible.
- "3. Reliable promise from manufacturer to deliver as requested, or early advice that schedule will be delayed and why.
- "4. Consideration of your low markups and need for close cooperation and coordination particularly as applies to prices quoted.
- "5. Close attention to routings and destination.
- "6. Manufacturer's warranty through first year of actual operation.
- "7. Direct factory competition.
- "8. Products fully approved by consulting engineers and architects.
- "9. Complete up-to-date technical data in the hands of design agents writing specification.
- "10. Trouble-free product. Experiments and failures damage good name of contractor and manufacturer and cost money to correct.
- "11. Need for lowest possible costs; lower prices mean more people can buy.
- "12. Consideration and understand-

ing that manufacturer can be no more successful than the dealers and contractors who represent them and sell their products."

Manufacturer's Problems

The manufacturer's problems are these, Knoff continued:

- "1. Need for constant, consistent production to build a product economically to meet a competitive market.
- "2. To do this, manufacturers must have a stable dealer-contractor organization which, as franchised outlets, promote the sale of their products only.
- "3. Building standard models, eliminating special types, sizes, and production runs." (Special equipment, Knoff commented, could be changed to standard in many cases with pre-selling and study by the dealer-contractor or field engineers.)
- "4. Keeping a sufficient inventory of hard-to-get items to protect production.
- "5. Warehousing sufficient products to protect dealer-contractor business during off periods.
- "6. High cost of field manpower and loss to trade.
- "7. Lack of aggressive merchandising practices at consumer level." (Here again Knoff emphasized the need for pre-checking and pre-selling prior to making a bid. He added: "We're running into more and more problems on the availability of materials.")
- "8. Factual information at consumer level of dealer-contractor needs far enough in advance to make sensible forecasts of production requirements. We have to place our orders six months ahead and then hope that our allocations are not cut too much.
- "9. Consistent, hard-hitting advertising and sales promotion plans at dealer-contractor level.
- "10. Lack of inventories in field puts burden of load on manufacturing.
- "11. Refusal to accept service responsibilities. It takes more manpower, increases costs, and loses customer goodwill for both.
- "12. Dealer-contractors' lack of loyalty to one manufacturer."

Some Answers to Mutual Problems

Knoff then presented these "answers to some of our mutual problems:

- "1. Most manufacturers today try to give a factual answer on availability of equipment. Present material problems will unintentionally change many firm commitments and cause substitutions. You should be so advised.
- "2. Many manufacturers today are not equipped to manufacture economically all correlated items required. Each item creates a different problem; price and deliveries must be competitive. Extended production could well curtail over-all production of prime product. Material problems are creating the necessity for many jobs going the packaged route.
- "3. Manufacturer's acceptance of an order should constitute a firm contract but delays and constant increasing costs often create price problems. These should be discussed honestly with the customer (contractor and dealers).
- "4. Most manufacturers try to route in accordance with instructions, but sometimes the human element enters and mistakes occur.

Policy on Warranties

"5. Manufacturers, as a whole, have a one-year warranty on defective parts and material. A more liberal warranty either to cover labor or to extend the warranty period costs money which would be added to the price of equipment. Forced substitutions of certain materials due to defense plans preclude the advisability of such an arrangement at this time. We would both lose.

"6. Direct factory sales policies as a whole came into being while the dealer-contractor organizations were growing up. Finances, know how, aggressiveness, and reliability all played their part. Willingness to accept service responsibility played a big part.

can do great things for air conditioning, too, he stressed.)

Future Problems Are Many But Opportunity Is Great

The problems ahead for the industry are many, Knoff concluded: restrictive orders on building, availability of materials, possible substitution for some critical materials, and manpower to install profitably.

But, he said, the opportunities also are many: industrial air conditioning, government requirements, the chance to line up with a reputable manufacturer who will help with future plans, and the residential market.

The latter, Knoff declared, offers a tremendous opportunity. He pointed out that workers are becoming convinced of the need for air conditioning at home by enjoying its advantages in the offices, stores, and plants in which they work.

Knoff said a study has shown that 50% of the market has warm air furnaces.

Air Conditioning Potential

"The warm air furnace becomes a permanent part of the home," he said. "The owner is faced only with a maintenance problem so he is completely out of the replacement market, barring changes in a home requiring more heating.

"His next step in home comfort, therefore, is air conditioning. Thus, all owners of homes with warm air furnaces are prospects for air conditioning and electric filtration.

"All homeowners are anxious for air conditioning but they must be shown that they can pay for it," he asserted.

Humorous Newspaper Ad Catches Customers

LOS ANGELES—Adding a touch of humor to appliance and television promotion produced record sales during October for Ted Kaye, veteran retailer operating two stores here.

Early in the month, Kaye ran a 4-column, 20-in. newspaper advertisement which showed an appliance salesman fast asleep in a swivel chair, with his feet up on a desk. The headline, in heavy letters, read "SH . . . Do Not Disturb Salesman . . . Our Appliances Sell Themselves!"

Below were quoted prices and service warranties on television sets, Hotpoint and Crosley home appliances, radios, etc.

The unusual advertisement caught the eye of many readers, and in the first hour after the store opened on the following morning, Kaye received 30 telephone calls.

Detroit RSES Plans Twin Bill

DETROIT—Two topics—refrigeration controls and the serviceman's legal rights in dealing with customers—will be discussed on the twin bill planned for the Dec. 13 meeting of the Greater Detroit RSES chapter to be held at the Veterans Memorial.

Controls and their application will be discussed by Fred Williams of the service information division of White-Rodgers Electric Co. Roy Hestwood, attorney, has also been invited by Ed. Lee, program chairman, to outline some legal problems servicemen may encounter in their daily calls.

Air conditioning paves way for largest office building (OF ITS TYPE) in

THE PROBLEM. Watchdog of the U. S. Treasury, the GAO (General Accounting Office) in Washington, D. C., now employs nearly 10,000 men and women. At the close of World War II, this important agency of the Government occupied 21 buildings and was spread out all over the city.

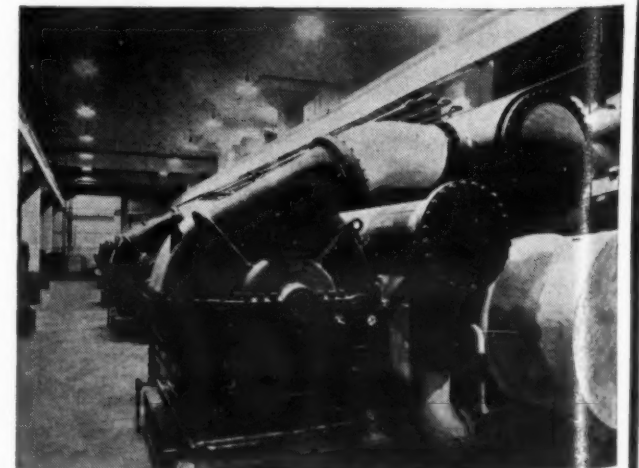
In recognition of the GAO's urgent need for enough space to accommodate miles of files and acres of business machines, architects under supervision of Gilbert Stanley Underwood, Director of PBS (Public Building Service)—Design and Construction Division—approached the problem . . . realized at once that any structure of sufficient size would necessarily have to be air conditioned throughout.

THE SOLUTION. Plans based upon an elaborate system of air conditioning were subsequently drawn up for a mammoth, seven-story "block-type" structure. "It was designed solid," explained W. E. Reynolds, PBS Commissioner, "to utilize the maximum floor area within site limitations and the Capital's restriction on the height of buildings." The GAO has the largest uninterrupted floor space of any office structure in the world . . . 1,330,000 square feet . . . and dwarfs every edifice in the Capital zone with exception of the Pentagon.*

The exterior walls of the GAO have 1,095 windows, although these provide light to relatively few offices and are seldom used for ventilation. The building contains over 50 miles of fluorescent lights and has an estimated 27 miles of ducts to channel conditioned air to its hundreds of work areas. Construction of the 21.5-million-

dollar office structure started in 1949, and it was formally dedicated in September 1951. As one architect stated: "It couldn't have been built at all without air conditioning!"

*Although the Pentagon has 6,000,000 sq. feet of floor area, the space is broken up by interior courts.



Battery of four "Freon"-charged York Corporation Turbo Compressors is the heart of the air conditioning system that provides comfort cooling for almost 10,000 Government employees.

THE INSTALLATION. To provide suitable working conditions everywhere within the building, engineers determined that 1,026,400 cubic feet of cooled and dehumidified air would be required per minute. For this purpose the mechanical contractor selected four giant York Turbo Compressors, each rated at 1,000 h.p.

**CLEANABLE
WATER-COOLED
CONDENSERS**

More Efficient Double-Tube
Counter-flow Design

1/2 to
25-Ton
Capacity

HM

Acceptance in the field is rapidly changing to "Demand" for these efficient, more economical Cleanable water-cooled Condensers. Owners and service men prefer the "new unit" efficiency that can always be maintained by a simple cleaning process. Brass headers, machined and brazed.

Write for Catalog and Prices
WHOLESALE IN PRINCIPAL CITIES
Halstead & Mitchell
BESSEMER BLDG. PITTSBURGH 22, PA.

"OFF"
IS THE MAGAZINE
OF THE
INDUSTRY

Do you know that Frozen Foods is the fastest growing branch of the food industry—over one billion dollars will be sold at retail next year! Per capita consumption is already 15 pounds... frozen vegetables, fruits, concentrates, seafoods, poultry, meats and specialties.

QUICK FROZEN FOODS offers exclusively CCA audited complete coverage. Put "OFF" on your advertising budget. Write for informative industry survey.

QUICK FROZEN FOODS

E. W. Williams Publications, Inc.
82 Wall Street, New York 5, N. Y.

Freezer Sales In Alaska Top Old Gag



FLYING freezers to Alaska makes it look like customers can hardly wait to get them. Here Howard D. White, vice president and director of engineering; Gregg F. Forsthoefel, president; and J. Harold Overmyer, vice president in charge of sales, all of Revco, Inc., watch as a Chill Chest freezer is loaded for trip to airport for flight to Anchorage, Alaska.



SELLING lots of freezers to Alaskans helped win H. A. Faroe, proprietor of Northern Supply Co., Anchorage, Alaska, the "Road Race Jamboree" necktie, which I. P. Pruitt, major appliance sales manager for the G-E Supply Corp. presents to him. Faroe's wife is shown with him.

Predictions of Things To Come

Blees Sees Evening Shopping Hours, More Convenient Stores To Please Public

CINCINNATI — "I predict that people will want to buy at night, and they will want to buy in convenient locations near their homes."

So William A. Blees, vice president of Avco Mfg. Corp. and general sales manager of its Crosley Div., told executives attending a class in Advanced Management at the University of Cincinnati's College of Business Administration.

He made the forecast in warning that sweeping changes in conventional sales patterns caused by decentralization of urban areas, the growing number of "housewife-workers," and keener competition for the consumer's time and dollar offer a challenge which industry must meet in order to merchandise its wares successfully.

Blees pointed out that increasing demands on consumer's time are creating serious problems for sales departments in reaching customers and getting their attention long enough to make a sale.

The Avco executive noted that with 4,000,000 men in the armed forces and with our government committed to a huge defense program, increasingly heavy employment of women means they will have less time for other things, such as shopping, six months or a year from now. He emphasized that "we in sales activities must conform to the convenience of our customers."

He said more stores are finding

out every week that people want to buy at night and in locations near their homes.

He added: "Witness the movement to suburban areas in the last few years of supermarkets and other major stores which are staying open at night."

Blees said he was urging Crosley's sales organization to recognize these changes and develop new methods to meet them.

"I am recommending that we go even a step farther and put women into responsible sales positions," he stated.

"This will not only help alleviate the critical manpower shortage which is bound to come in the months ahead, but will, again, help to bid for the consumer's time and dollar by providing the busy housewife-worker with a woman's judgment in matters pertaining to her home from the very first contact with one of our sales outlets."

Certain household articles and appliances which are basically time-savers will be in even greater demand as the consumer has less and less time to spare, according to Blees. As an example he cited the home freezer, which makes possible more economical buying in larger quantities, thus permitting the busy housewife-worker to shop for certain foods only once or twice a month and to plan her family's meals well in advance.

Free Grocery Promotion Attracts a Lot of 'Free-Loaders'—Only 1 Sale

SALT LAKE CITY—"I guess we'll stick to straight selling, no matter what conditions may be."

That was the sad comment of D. D. Milne, head of Brady-Milne Appliance Co. here, on results of an offer to give \$10 worth of groceries free with every home demonstration of a new refrigerator. The promotion, Milne said, was a "flop."

The dealer believes that the householder whose credit is good and who is willing to test a refrigerator over a period of a week or 10 days in his own kitchen, is an excellent prospect. However, though the firm had

advertised these home demonstrations for some time, there were very few "takers."

To provide more incentive, Milne announced recently that Brady-Milne would send \$10 worth of free groceries to any person requesting a free 10-day demonstration on a new Frigidaire. There was no obligation to buy, and the advertisement promised that "no strings would be attached."

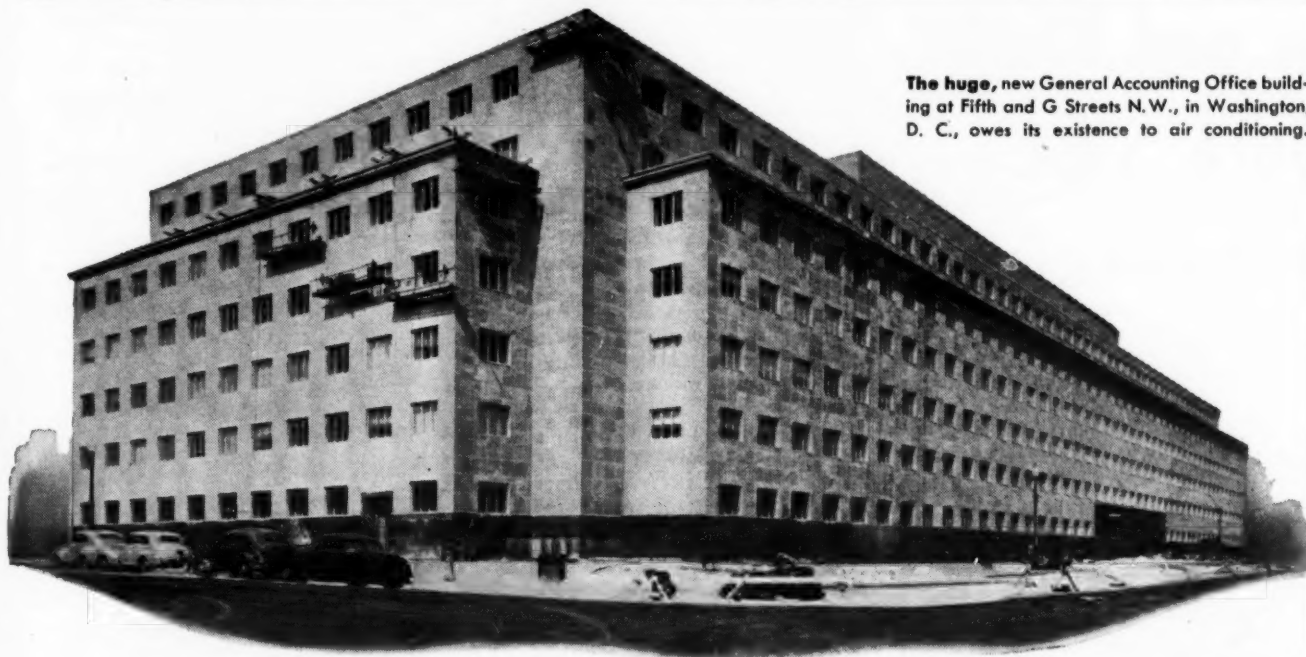
There were many immediate applications, all of which Milne checked against the city credit bureau's rating list. But it was found that from

the first 40 applicants for the home demonstration, only one had the sort of credit rating which made him a worth-while prospect.

Result was that only one refrigerator was shipped out, along with the groceries, and although this sold, as expected, the plan was given up.

"We still think that the idea could be put to practical use," the dealer said. "However, it is too difficult to eliminate the free-loaders and joy-riders who merely see in it an opportunity to use a refrigerator free for a week or more and to collect free meals along with it."

The huge, new General Accounting Office building at Fifth and G Streets N.W., in Washington, D. C., owes its existence to air conditioning.



Photographs: Courtesy York Corporation, Supervising Architect Gilbert Stanley Underwood, Director, PBS (Public Buildings Service), Design & Construction Division.

in the world!

and developing a total of 4,200 tons of refrigeration. The machines were installed in the basement engine room by Mehring and Hanson—Wm. H. Singleton Co., Mechanical Contractor, Arlington, Virginia, and are charged with "Freon" safe refrigerants.

Operation of the system includes the chilling of several million gallons of water per day. Chilled water is pumped from basement to coils located in a rooftop penthouse. Air is then circulated around the coils . . . is chilled in turn and distributed through the system of ducts to offices, a third-floor cafeteria of 1,500 seating capacity, workshops, an auditorium and various other rooms. The total cooling effect of the installation may be compared with that of melting over 8,000,000 pounds of ice daily. Heat, when required, is provided in radiators by steam from the Government Central Heating Plant.

In the words of one official: "We think this building provides good working conditions, with better air than a man can breathe on the street . . ."

TOMORROW'S PROSPECTS. Of course, every air conditioning job can't be one of the "world's largest." But it can—and should—be one of the world's safest, regardless of size. The safety factor today—as always—ranks high in determining the selection of equipment for both large and small installations in new and old buildings of every type.

Conditioned air plays so important a part in our everyday lives that it has come to be regarded as a "must," and the demand for it is constantly growing. Often, as in the case of the GAO building, the structure

itself is made possible only by application of modern methods of air conditioning.

You can do well to survey your own trading area . . . now. List likely users of new equipment. Follow them up by letter, phone or personal visit. Plan to get your share of this profitable business. And keep in mind . . . you can do your prospective customer a real service by recommending air conditioning or refrigerating equipment charged with "Freon" refrigerants. These refrigerants are safe . . . nonflammable . . . nonexplosive . . . virtually nontoxic . . . always dependable. They assure the satisfactory, economical, trouble-free performance of the system, prolong its life and enhance the owner's investment. Another important point: "Freon" safe refrigerants meet all building-code requirements. E. I. du Pont de Nemours & Co. (Inc.), "Kinetic" Chemicals Division, Wilmington 98, Delaware.

DU PONT

REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

KINETIC

"FREON" SAFE REFRIGERANTS

"Freon" is Du Pont's registered trade-mark for its fluorinated hydrocarbon refrigerants.

Hotpoint Film on Packaged Kitchens Aimed at Consumer

CHICAGO—The successful formula for the sale and installation of complete kitchens, developed by Hotpoint Inc. over many years, has been standardized for use by its dealers.

Reasons for grouping appliances into a compact sales package for dealers' profits, is the theme of the formula. It tells how to plan a kitchen for step and labor-saving use; how to choose the proper appliances to fit the project; and, how to coordinate these elements.

This and other information for consumers and dealers has been put into a 20-minute sound film which is now available through distributors to Hotpoint's 15,000 dealers.

The film is personalized by a story built around the master of ceremonies of a "radio quiz" program, with established motion picture actors taking the leading parts. The gimmick is that most housewives who show up on this program are very unhappy because they are "overworked." When a happy one shows up it turns out that she has an all-electric kitchen.

From there the action moves to her kitchen where flashbacks go into the several steps mentioned above. The theme of the film is told at the opening in a five-minute strip in which Edward R. Taylor, Hotpoint vice president, outlines the business advantages to the dealer who plans and sells all-electric kitchens.

To merchandise the film to dealers a plan book has been devised. It explains how to set the film with local schools and committees, explains exploitation and other promotion activities. The latter includes how to gain circulation for the film by showing it to women's clubs, civic groups, and others. Promotional material includes banners, tickets, flyers, prospect cards, and mats.

While the story gets across a standard sales approach for dealers, it is actually a consumer story and is aimed at this audience over the dealer's shoulder.

A similar standardized story of the complete home laundry has been developed and placed on film in the same manner. It is planned as a companion film for the kitchen picture and with the aim of making a "double bill" program.

JUST ASK US!

Turn to "What's New" Page for useful information on new products.



KOOLOMASTER DIRECT DRAW

Engineered to serve beer to the "Brewmaster's" taste. Its smart appearance enhances any establishment. Choice of 8 models in Stainless steel or brown Dulux finish.



KUBEMASTER ICE CUBE MAKER

Whenever food or refreshment is served, ice cubes as you need them. Choice of 3 beautiful models.



REACH-INS

Modern flush fronts with recessed handles in popular sizes. Ten models to choose from. Available in white Dulux, stainless steel fronts and glass doors.



UPRIGHT FREEZER 15 Cubic Feet

Scientific placement of cooling coils, two separate food compartments, dual doors to minimize cold loss, insure balanced freezing at minimum cost.



DRY KOOL BOTTLE COOLER

World famous for performance and design. 14 models to meet all requirements in stainless steel or brown Dulux finish.



DESIGNED—ENGINEERED—MANUFACTURED

UNITED REFRIGERATOR COMPANY

Locust and Walnut Sts. HUDSON, WISCONSIN

INSIDE DOPE

by GEORGE F. TAUBENECK

(Concluded from Page 1, Column 1)

"I'll say I am. And thanks for your kind invitation. I'll write 'em to take the next train."

Swish Swishes

It was his first try at real acting. He had been a chorus boy, but never before had he been assigned a "bit part" in a play.

He made his first entrance in Act II; and at rehearsal he ambled onto the stage most unconvincingly. Growled the director:

"No! NO! Do it over. This time, walk in like a man."

"Fie!" whinnied the ex-chorus boy to himself. "For these prices, character roles he wants me to play."

Verdict: 'Inadequate'

Death silenced the caustic tongue of a theatrical critic who was notorious for his contemptuous reviews of successful hits of the season.

Upon learning of his passing, a contemporary remarked:

"What a shame! Undoubtedly, he won't approve of God!"

Democrat?

The Jones family had just moved from Tennessee to a small town in

lower Michigan. They were right proud of themselves.

Sauntering uptown Papa Jones caught sight of the village post office. He entered and began conversing with the wary clerk.

"How long will I have to live here before I'll be allowed to vote?" asked Brother Jones.

The clerk squinted suspiciously at this newcomer. Then came a long pause. The postal system employee surreptitiously shifted his wad of tobacco to the neighboring cheek.

"Whut ticket?" he glimmered.

Memory by Association

Talented violinist was dining with a friend.

With fascination he stared while a waiter placed a large platter of whole-broiled fish on a neighboring table. The eyes of the fish stared glassily out at the world, and their mouths hung loosely agape.

Eventually this unappetizing sight jarred his memory, and the musical genius jumped up from his table.

"That reminds me; I must hurry. I am scheduled to play at a concert this evening!"

Parsimony for the Parson

Being a son of a pharmacist, the writer sometimes wonders how a druggist can maintain his equilibrium—when he is compounding a precise prescription, and is interrupted by a customer who wants only a penny postage stamp.

At a moment like that, assault-and-battery should be excusable.

Here's an extenuating situation. An old customer entered a drugstore

on a Sunday morning, and requested change for a dime. He needed two nickels to use the pay telephone, but didn't say so.

As the druggist handed over the change he growled:

"I hope you enjoy the sermon."

Study In Scarlet

On an advice-to-the-lovelorn radio program an embarrassed young man shuffled up to the microphone and haltingly phrased his dilemma.

"I been goin't with this girl, see," he began, "for a long time. And I aim to marry her. But last week I found out her father, her uncle, and her two brothers are all idiots. And she's been married five times and has six kids around here boarding with relatives. Last night she told me that she owes \$2,000 to her doctor. So this morning, I seen her doctor, and he warned me she has an incurable disease."

"Ah, yes," sympathized the radio oracle. "You have quite a problem there."

"That's right, perfesser. My problem is: Are they right when they say that June is the best month to get married in?"

No Branch Water

Two gentlemen from the south met on a train. They found they had a number of things in common, and so one "cunnel" invited the other to have a drink in the club car. Each ordered a bourbon, of course.

When the drinks arrived, the first "cunnel" closed his eyes before downing the stuff.

"Cunnel Beauregard, suh!" stiffened the second. "Whaffar you shut

your eyes? Ah you insultin' the mountain dew of ol' Kentucky?"

Beauregard wiped his mustache and goatee with evident relish.

"Suh," he rejoined, "whenevah mah good eye is assuaged by the beeyootiful colah of pristine bourbon, mah mouth watahs. And shure, Ah likes mah whiskey straight."

Wedding Reception

Neither the bride's family and her friends nor the groom's family and friends were acquainted. And so, at the wedding reception, the two groups tended to separate.

Hoping to break the ice, the bride's father appeared with a huge tray of liqueurs and glasses. He announced:

"There's just one rule in this house: I serve every other drink to the guests."

That did the trick, and before long people who had been snooting one another were fast friends, indeed.

But the bride's father observed one morose fellow who persisted in sitting alone, refusing to join in the fun.

Pop waltzed up to this uncooperative character, with a fresh drink in each hand.

"Whassamater, Joe," the father cracked, "haven't you kissed the bride?"

The uncooperative character didn't even look up.

"Not lately," he conceded.

Success Story

Scratching his undershirt, Papa Pappadakis felt the need of a cooling draught of beer. It was a summer's night, hot, in Brooklyn.

"George," he beckoned to his youngest son, "here's a quarter. Run down to Joe's place and fetch me a growler of brew."

Dutifully, George took the quarter, descended three flights of stairs, and headed toward Joe's place. On the way he met Gertrude.

"Hi, there, George," she greeted. "Come along, we're all going over to Hackensack for a big time."

Four days later George woke up in Pittsburgh, broke. So he got a job as a steel puddler. That kept him busy for several years; but he worked hard, day and night, and made a lot of money.

Twenty years afterward, George came home to Brooklyn in style. Dressed in fancy clothes, riding in the back seat of a chauffeured Cadillac, he rolled up to his old home.

His pops was still there, and still scratching his underwear.

"Hi Dad," grinned George, effusively. "Here I am again. Doin' all right?"

Snorted the Old Man:

"Where's my beer?"

No Sense to It

Darned if we know why, but this goofy story convulses some people we know. Around 2 a. m., it goes, a bartender wiped his last glass clean and prepared to close up for the night. As he was about to shill the cash register, an odd character wandered in and ordered a shot of whiskey and a "shell" of beer.

The bartender served him ill-humoredly.

Downing the beer, the Character poured the shot of whiskey into his vest.

"Hye!" grimaced the bartender. "What goes on here?"

The Character bridled.

"Do I try to run your business?" he yammered. "What I do with my drinks is none of your yap. Step out into the alley and put up your dukes."

"Yeah," piped up a little mouse, popping his head over the Character's vest pocket, "and that goes for your cat, too, my friend!"

Fair Enough

The writer's erstwhile roommate and present neighbor, George Christensen, vacations in the cattle country for long periods at the beginning of each new year. He likes the climate—also the characters.

One night Big George, having galloped through the sand and cactus as far as his cayuse was willing to take him, dismounted at a desert inn. Therein he found six rustlers playing poker. Big George kibitzed until he observed that one of the cowpokes had just dealt himself four aces—off the bottom of the deck.

"Yikes," he yelled. "This hombre is

cheating. He's dealing 'em off the bottom."

"So?" responded one of the players, coldly. "It's his deal, ain't it?"

Changed Life

Ed was known far and wide as a tightwad. He never picked up the check, and when he bought a gift it was a below-zero Tuesday in July. As a matter of fact, he never even bought a new necktie for himself. Thrift was his watchword.

To the utter amazement of his associates, Ed blossomed out one day with a new suit, shirt, fancy necktie, hat, and topcoat. When he walked into the office with all this haberdashery, his partner couldn't control his curiosity.

"Ed! What gives?"

"I'm the father of twins."

"Wonderful, Ed. That's grand. Congratulations. Is that why you're celebrating with all those fine feathers?"

"Are you kidding? What's the use of saving money now?"

Could Be

In the midst of a clean-out-the-gamblers campaign, detectives raided a suite on the thirteenth floor of an office building.

Tenant of an adjacent office was working late that night. He heard the quiet commotion, suspected burglars, and phoned police headquarters.

Automatically an alarm was radioed to scout cars in the vicinity, and three of them sirened over to the office building. As they were about to pile out, with guns drawn, the dispatcher remembered that the above-mentioned "raid" was "on" that night.

"Don't be hasty," he warned via the police system short-wave megacycles. "The burglars might be detectives."

Take Your Medicine

Pasted on the mirror of a Westchester bar is this legend:

"Might as well have another, brother. A woman can get just so mad."

Out of the Mailbag

Production Equipment Co.
San Antonio 9, Tex.

Editor:

What did the man say when he stuck his finger in the gasoline tank?

Answer:

"That doesn't feel like Ethyl."

H. E. SCHULZE

P. S. The NEWS continues to grow and grow and grow "better" as the years roll on, and it really is in a class by itself.

Christmas Woe

Pathetic is the Christmasted Male Shopper who battles his way through hordes of embattled women in a big department store. Typically bedeviled Mr. Poordevil, trying manfully to juggle an up-to-the-eyebrows load of packages in assorted sizes, pushed his way up to an information booth.

"Lady," he gasped, "would you mind reaching in my right coat pocket to find a list on a long piece of paper?"

The customer is always right and, besides, she felt sorry for him. So she retrieved the gift list and held it up where he could see it.

"Oh-h-h-h, NO!" he croaked. Will you tell me where in the blankety-blanked hell the \$!***\$!! baby ribbon counter is?"

The Income Tax Song

Internal Revenue Collectors hold conventions too, and despite cartoons and popular beliefs, they have a good time in off moments.

At a convention in New York the income tax boys were wining and dining in a night club. Came the floor show. A blonde chanteuse gave out with the Seymour Simons classic, "All of me . . . why not take all of me, etc."

Every man at their long table stood up.

"That's our national anthem," they shouted.

Dog Tail

"Our dog," bragged Bo Bore, "is just like one of the family."

"Yeah? Which one?"

Always Look for the Yellow and Black DETROIT Boxes—the Sure Sign of a Good Refrigeration Wholesaler!

How do you tell a good refrigeration wholesaler—by his courtesy, by his speed in filling orders, by his ability to supply you with the product you want when you want it? These are all good points, but more important is the quality of the products he sells. And when a wholesaler stocks and sells DETROIT products, you know he stocks and sells the best. That's because all DETROIT Expansion Valves, Solenoid Valves and Controls are built for dependable, economical performance—to supply your customers with long years of reliable trouble-free performance. So always look for the familiar yellow and black DETROIT boxes on the shelf—the sure sign of a good refrigeration wholesaler!



DETROIT'S PLAN-

Now Selling Both Your Independent
and Chain Store Customers!

DETROIT's successful, hard-hitting plan plugging periodic service checkups now gives you the additional benefit of big, profitable chain store coverage—a rich refrigeration conscious market! In addition, full page DETROIT advertising will continue to stress the importance of proper refrigeration maintenance to your customers in the independent grocery, meat, restaurant, dairy and ice cream fields. It's a powerful plan-building new business for refrigeration servicemen everywhere!



DETROIT HEATING AND REFRIGERATION CONTROLS • ENGINE
SAFETY CONTROLS • FLOAT VALVES AND OIL BURNER EQUIP-
MENT • DETROIT EXPANSION VALVES AND REFRIGERATION
ACCESSORIES • STATIONARY AND LOCOMOTIVE LUBRICATORS

ASK YOUR DETROIT WHOLESALER FOR YOUR
SUPPLY OF "INDUSTRY SLOGAN STICKERS!"

DETROIT

LUBRICATOR COMPANY

5900 TRUMBULL AVENUE, DETROIT 8, MICHIGAN
DIVISION OF AMERICAN RADIATOR & Standard Sanitary CORPORATION
CANADIAN REPRESENTATIVES: Railway & Engineering
Specialties, Ltd.—Montreal, Toronto, Winnipeg
EXPORT DEPARTMENT—Box 218 Ridgely, New Jersey



Serving home and industry AMERICAN STANDARD • AMERICAN BLOWER • CHURCH SEATS • DETROIT LUBRICATOR • KEWAUNEE BOILERS • ROSS HEATER • TONAWANDA IRON

ASHVE Hears New Developments In Design of Hot Water Heating Plants

CHICAGO—Tremendous strides have been made in recent years toward the improved design and operation of hot water heating systems. Higher and higher water temperatures have been used, and today it is commonplace to design for radiator, convector, and baseboard temperatures of 215° F.

Operating characteristics of these systems, quite different from those of gravity hot water heating jobs, were described to members of the Illinois Chapter, American Society of Heating and Ventilating Engineers at a recent meeting which inaugurated the chapter's 45th season.

John W. James, vice president in charge of research, McDonnell & Miller, Inc., traced the development of the present day system from the earlier gravity type open system.

He emphasized the importance of providing relief valves to perform a function similar to that of pop safety valves on steam boilers. He mentioned that the 1949 edition of the ASME Low Pressure Heating Boiler Code states that all hot water heating boilers shall be provided with Na-

tional Board of Boiler and Pressure Vessel Inspectors tested and rated hot water relief valves bearing the ASME letter symbol V on the nameplate. This means that the valve must be selected so that the nameplate rating on the valve, expressed in B.t.u. per hour, matches the gross output of the boiler.

James also said that when a relief valve functions, large quantities of water and steam may be discharged so that a low water condition results. For this reason, a low water cutoff or water feeder is used.

H. A. Lockhart, chief engineer, Bell & Gossett Co., described the problems encountered in designing forced hot water heating systems for multi-story buildings. Stating that a pressure of 30 p.s.i. and a temperature of 250° F. are normally the legal limits for hot water heating systems, he used diagrams to show that in many installations the static head on the boiler left insufficient leeway for pressure rise due to temperature increase and surging of the circulating pump.

For high buildings, Lockhart recommended that the system be divided into vertical zones with converters for each zone. If a steam boiler is used, the converters would be of the steam to water type, with pumps used to circulate the heating water throughout the various zones.

Rather than operate the boiler under high pressure code requirements, he suggested the use of a high pressure-low pressure boiler where possible. This type boiler is used to heat water at pressures up to 160 p.s.i. but is not permitted to heat the water to temperatures higher than 250° F. This type of installation would utilize water to water converters and could be operated under low pressure heating boiler code requirements.

L-O-F Develops New Heat-Absorbing Glass; Aid to Air Conditioning

TOLEDO—Large insulating windows may now be engineered to air conditioning needs with the new and improved, low-expansion type, heat-absorbing plate glass available for fabrication into Thermopane units, it was announced by G. P. MacNichol, Jr., vice president in charge of sales of Libbey-Owens-Ford Glass Co.

The 1/4-in. heat-absorbing plate glass excludes 61% of total sun radiation but transmits 71% of average daylight, when used in Thermopane with one light of the conventional 1/4-in. polished plate glass.

In some special cases a combination unit of two lights of the 1/4-in. heat-absorbing glass may be used to exclude 78% of solar radiation and transmit 62% of daylight.

Air conditioning units usually are built with a 25% margin of extra load, as figured by engineers, to cover unusual conditions. With the new type of heat-absorbing glass in windows it is possible to reduce the mechanical equipment and save initial and operating costs on air conditioning equipment.

Large residential windows on a western exposure, or where overhangs for shading are not available, may be glazed with the new heat-absorbing glass to reduce heat input.

"This new glass is exceptionally well designed for glare reduction glazing in shops where abundant daylight is required but eyes must be protected from glare for close work," said MacNichol.

"Heat-absorbing glass in Thermopane also is useful in display windows where candy, flowers, baked goods, or other types of perishable things are shown."

Laundries and some units in textile plants, where there is much moisture in the atmosphere and protection against excessive condensation is desired, use the insulating glass to control the condensation and may have the added advantage of comfortable working conditions with heat-absorbing glass included in the built-in unit.

Morton's Appliance Center Opens

SYRACUSE, N. Y.—Morton's Appliance Center, a new appliance store, has been opened at 941 E. Genesee St. Morton M. Arones is the proprietor and Arthur A. Heyman is manager.

Precise Climate Control Needed In Paper Testing Laboratory

Window Unit In Room With No Outside Wall Holds Plus or Minus 1°

VICKSBURG, Mich.—By painstaking adjustment of a series of temperature and humidity controls, Robert Davis of Davis & Collison Co. of Kalamazoo, has set up a 1-ton Frigidaire room air conditioner so that it will maintain the precise climatic conditions required in the paper testing laboratory of the Lee Paper Co. here.

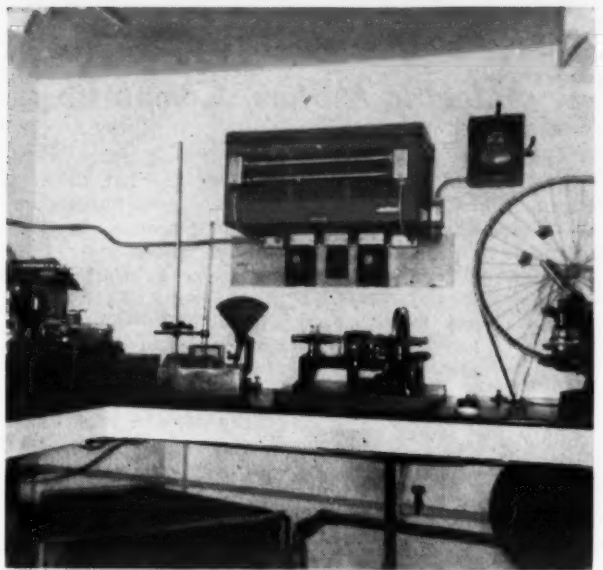
The laboratory is an insulated room 10 ft. wide, 15 ft. long, and 8 ft. high that has no outside walls. To do the test work required, a room temperature of 70° F., plus or minus 1°, with a relative humidity of 50%, plus or minus 1%, must be maintained the year-round.

To meet these requirements, Davis used a model ARL-100 Frigidaire room cooler for cooling and dehumidifying the room. He equipped the cold air outlet with two 2,000-watt finned space heaters for heating the room. An open pan type humidifier was employed to add moisture to the air when necessary.

To meet the close temperature and relative humidity requirements, two temperature controls were installed. One closes on the rise for the heater and the other closes on the fall to operate the cooler.

Two humidistats were also used. One closes on the rise for the cooler and the other closes on the fall for the humidifier.

The air circulating fan on the



1-TON ROOM COOLER supplies precise temperature and humidity control in an insulated inside room of Lee Paper Co. testing laboratory.

room cooler operates continuously.

The controls were all set at 1 1/2 points differential. Adjusting the controls to meet these exact conditions was very delicate and required several days, Davis declared. Once they were set, however, the installation performed beyond everyone's expectations and at a very low cost of operation, he said.

The air conditioner was mounted in the wall at a height of about five feet. It projects through the wall of the test room into a store room which is well ventilated.

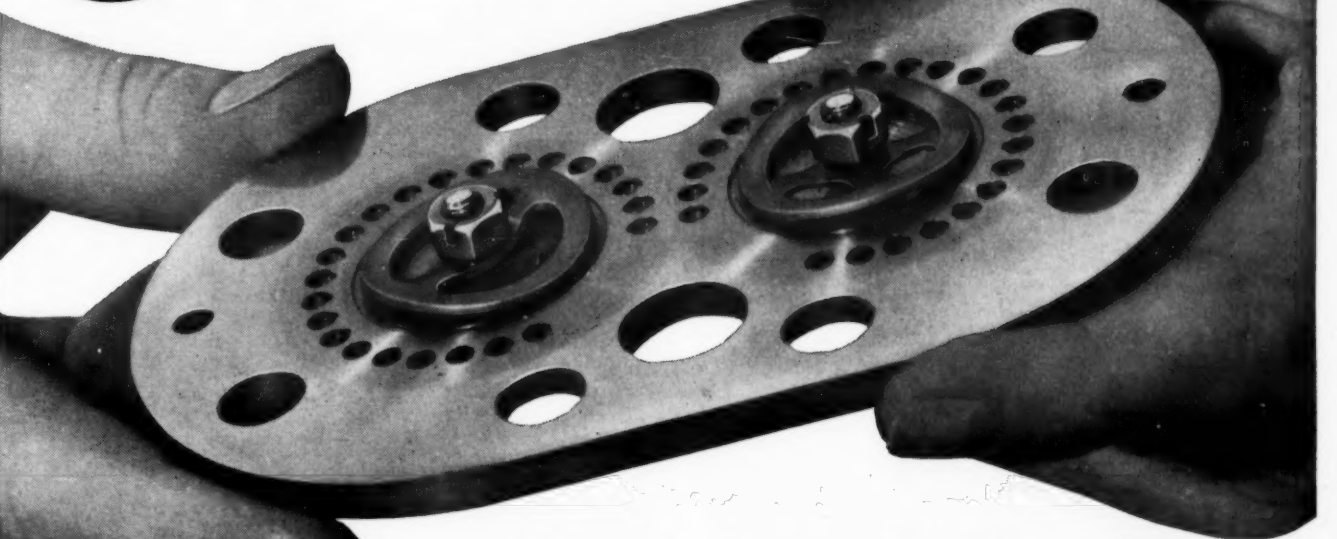
Relating how he got the job, Davis

said he called on Lee Paper Co. as a user of air conditioning and refrigeration equipment to see if his company could be of assistance to them in their problems, either for additional equipment or service on present equipment.

Their problem, he learned, was to obtain desired conditions in the paper testing laboratory. Davis was given the requirements and after working out the problem, he specified the equipment and explained how it could do the job. He got the order, made the installation, and created a satisfied customer.



CONDENSING UNITS AND RENEWAL PARTS



Here's how G. E.'s thin valve plate cuts operating costs

A crucial spot where compressor capacity can be lost is in the gas passages of the valve plate. In a thick valve plate a large amount of refrigerant gas will remain after each compression stroke. On the next stroke, the piston must compress all this gas again, wasting energy and increasing power costs.

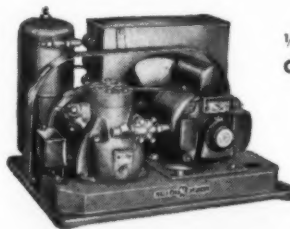
General Electric's valve plate—machined with exacting precision and constructed of high-grade spring steel—is so thin that there is very little

space in which gas can remain, yet the passages are wide enough to keep gas friction low. Compressor efficiency stays high and operating cost is cut.

There is added efficiency in the quick, sure action of the valves which peel open like an orange along the curved contour of the valve retainer. The peeling action produced by this retainer promotes long valve life by eliminating valve slap.

You can put your confidence in—

GENERAL ELECTRIC



1/2 hp CWC-318

G-E Open Type Condensing Units,
1/4-10 hp. G-E Sealed Units, 1/4-1/2 hp.
G-E Compressor Bodies, 1/4-10 hp.

FREE! DATA ON G-E SEALED AND OPEN UNITS

General Electric Company
Air Conditioning Dept., Sec. AC-12, Bloomfield, N. J.

Please send me literature on:

G-E Hermetics ☐ G-E Open Units ☐ G-E Renewal Parts ☐
I am a Service Engineer ☐ Dealer ☐ Manufacturer ☐ Contractor ☐

NAME.....

COMPANY.....

ADDRESS.....

CITY.....ZONE.....STATE.....



3307 Popular Triple

Federal the complete line for every refrigeration need...

- the name that's known all over the nation.
- smartly designed, for efficient performance.
- pioneers in refrigeration.

Write today for available Federal DEALER TERRITORIES.

FEDERAL REFRIGERATOR MANUFACTURING CO.
WAUKESHA, WISCONSIN

Federal
REFRIGERATORS

REMCO "loss eliminators"

Pull-up Profits for You!



At Leading Wholesalers

REMCO INCORPORATED
ZELLENFELD, PA.

WE WILL BUY!

DRYERS, BELTS, DEFROST TRAYS,
ICE CUBE TRAYS, ETC.

ANY QUANTITIES • MUST BE NEW

Write, Phone Or Call For IMMEDIATE ACTION

TRACO Industrial Corp.
455 W. 19 St., N. Y. 19, WATKINS 4-4302
(Send for Traco's complete list of sensational bargains)

Causes for Service Calls

Survey Finds Leaks Largest Reason for Trouble; Pressure Reducing Devices, Electric Motors, Compressors, and Controls Follow

CHICAGO—Leaks are the largest single cause of service calls, according to J. Cecil Sharp of Carrier Corp. who disclosed results of a survey of RSES members in a talk at the society's 14th annual convention here.

Basis of Survey

Leaks accounted for 171 of the 1,117 calls checked in the survey, it was shown. Sharp had asked members to describe the last three they had made just prior to receiving his questionnaire. The results, he thinks, can be considered typical.

As shown in Table 1, the second most frequent general cause was "pressure reducing devices" (expansion valves, capillaries, float valves, restrictors) with 164 calls. Electric motors were third with 142 calls, compressors next with 125, and temperature and pressure controls, 89.

Electrical troubles other than the motor caused 53 of the 1,117 calls; condensers, 46; moisture in system (including copper plating) and improper refrigerant charge, 40 each; belts, 22; and so on. There were 89 calls listed under "miscellaneous."

Besides the tabulation of the general causes of these service calls, Sharp further analyzed them by giving a breakdown of 15 of the 25 general causes listed in Table 1. This data is shown in Table 2.

It will be noted, for example, in

Table 2 that flares were the source of 26 of the 171 calls due to leaks. These included flares that were leaky, loosened, broken, or cracked, he explained. There were 19 calls involving leaks in the evaporator, 14 in sweat joints, 13 due to broken refrigerant lines, nine due to expansion valves, and 14 other causes.

There were, however, 52 calls due to leaks for which no specific part of the system was listed.

The breakdown in Table 2 under "pressure reducing devices" lists 50 of the 164 calls as being due to the "expansion valve" with no indication as to its type. There were 27, though, which specifically listed the thermostatic type valve. These included valve with the bulb loose, mechanical hang-up, having flood backs, those dead, plugged, flat, stuck shut, sticky, valves with discharged power element, etc.

Clogged screens (including line strainers) and frozen valves were listed separately.

Bearings Prove To Be Trouble Makers

In the matter of electric motors, which were cited as the cause of 142 service calls, bearings were the predominant trouble 30 times. Burned out motors accounted for 21 calls; capacitors for 11, and the starting switch for 10.

Twenty-three of the 89 calls on temperature and pressure controls involved adjustment. Only 10 calls were listed as being due to defective controls.

Major cause of complaints (125) on compressors was the seal, which was listed 70 times. Worn or broken valve reeds accounted for 11 calls as did gasket leaks.

Of the 53 service calls due to electrical troubles other than motors, 12 were for the relay, eight on the solenoid, and seven for a defective switch.

Causes Further Broken Down

The other general causes further broken down in Table 2 cover condensers, receivers, evaporators, multiple units, noise, water, oil, hermetic units, and the "miscellaneous" group. As might be expected, the latter covers a wide variety.

Sharp also provided an analysis of service calls according to the type of refrigerant involved. This is shown in Table 3, which, of course, is not intended to imply that service calls are more frequent with one type of refrigerant than another. This table probably does give some indication, however, of the use of various refrigerants on a comparative basis.

"Freon-12" was checked in 426 of the 1,117 calls, methyl chloride in

232, sulphur dioxide in 120, etc. On 291 calls, however, no refrigerant was specified. Of the remaining calls, "Freon-12" was listed in 51.6% of the calls, methyl chloride in 28.1%, sulphur dioxide in 14.5%, and ammonia in 4.1%.

Table 1—Service Calls According to General Causes

Cause	No. of Calls
Leaks	171
Pressure reducing devices	164
Electric motors	142
Compressors	125
Temperature and pressure controls	89
Electrical troubles (other than motor)	53
Condensers	46
Moisture in system (includes copper plating)	40
Improper charge of refrigerant	40
Belts	22
Water	18
Noisy	15
Oil	12
Continuous running	12
Install or move equipment	11
Hermetic unit runs continuously	10
Driers	9
Evaporators	7
Erratic temperature	6
Receivers	5
Multiple units	5
No refrigeration	5
High head pressure	5
Short cycles	5
Miscellaneous	89
Total	1,117

Table 2—Specific Causes Of Service Calls

Pressure Reducing Devices

Cause	No. of Calls
Expansion valve (not specified as to type)	50
Thermostatic expansion valve*	27
Screens clogged (includes line strainers)	22
Expansion valve frozen (or moisture)	19
Capillary tubing	12
Float (includes leaky, stuck)	9
Low side float	8
High side float	6
Restriction	4
Automatic expansion valve	4
Restrictor	2

Connections reversed	1
Float switch	1
Total	164

*Includes valves that had/or were, bulb loose, flood back, mechanical hang up, dead, plugged, flat, would not throttle down, stuck shut, wax in oil, sticky, discharged power element.

Leaks

Cause	No. of Calls
Flares*	26
Evaporator	19
Sweat joints	14
Broken refrigerant lines	13
Expansion valves	9
Service valves†	7
Low side	7
Excessive vibration	5
Sight glass	4
Valves and valve joints	4
King valve	3
Vibration eliminator	2
Driers	1
Receiver	1
Muffler tubing	1
Compressor	1
Evaporator header coil	1
Strainer	1
Belows	1
Not specified	52
Total	171

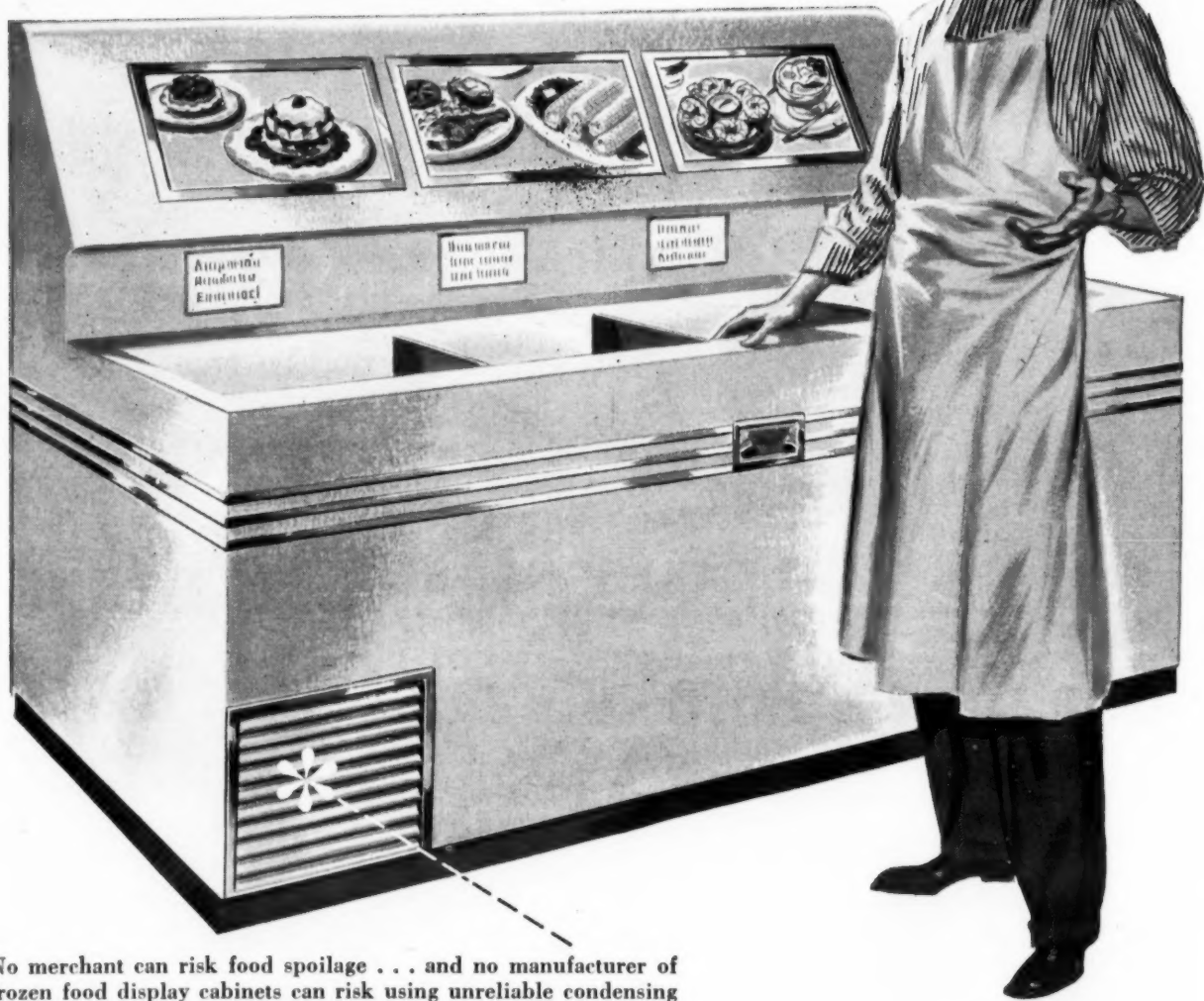
*Includes flares that were leaky, loosened, broken, or cracked.
†Includes caps that had been removed and were not replaced.

Electric Motors

Cause	No. of Calls
Bearings	30
Burned out motors	21
Capacitors	11
Starting switch	10
Repairs	8
Grounded wires	4
Brushes	4
Noisy	3
Does not get off starting winding	2
Does not pull load	2
Failed to start	2
Motor mountings worn	2
Excessive end play	2
Erratic starting	2
Drawing too much current	1
Replace motor	1
Tension spring broken	1
Lack of oil	1
Armature out of balance	1
Not specified	34
Total	142

(Concluded on next page)

"I just can't risk food spoilage!"



No merchant can risk food spoilage . . . and no manufacturer of frozen food display cabinets can risk using unreliable condensing units in the equipment he builds. That's why the name Tecumseh has become synonymous with dependability, and that is why more than 2/3 of all manufacturers of frozen food cabinets specify Tecumseh as standard equipment on all the models they make.

Of course there's a reason! Manufacturers know that Tecumseh's internal spring mounting and forced feed lubrication gives them a smooth, quiet and vibrationless unit that they can rely upon for low-cost, trouble-free operation. Yes, customer satisfaction can be assured when a Tecumseh Hermetic is specified as standard equipment in their frozen food cabinets.

No wonder Tecumseh's present production is over 200,000 units per month, and today there are more than 8,000,000 Tecumsehs in the hands of satisfied users.

Let us send you a catalog today describing these Tecumseh units.



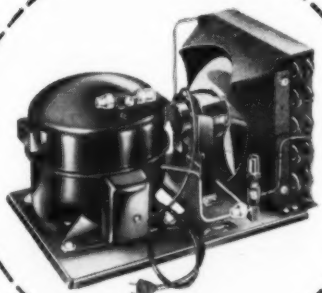
TECUMSEH PRODUCTS

TECUMSEH, MICH.

Company

TECUMSEH PRODUCTS COMPANY, TECUMSEH, MICH.
EXPORT DEPT.: 2111 WOODWARD AVE., DETROIT, MICH.

The world's largest producer of condensing units for the refrigeration industry.



3 WAYS BETTER!



HIGH STABILITY
LOW WAX
LOW MOISTURE



THE FINEST REFRIGERATION OIL
...at any price!

THE NEW . . . IMPROVED . . . ANSUL REFRIGERATION OIL . . . IS A RESULT OF THE PERSISTENT SEARCH BY ANSUL CHEMISTS AND REFRIGERATION TECHNICIANS FOR THE FINEST QUALITY REFRIGERATION OIL . . . AT ANY PRICE!

Since Ansul Refrigeration Oil was introduced in 1949 . . . its acceptance by refrigeration men has continued to expand. In only two short years Ansul is one of the leading refrigeration oils sold exclusively through Refrigeration Wholesalers.

The New . . . Improved Ansul Refrigeration Oil is now available at leading refrigeration wholesalers everywhere. It meets, or surpasses, every specification established by Ansul Research for a high quality refrigeration oil.

BUY IT NOW AT THE NEW LOW PRICE. Use it for more dependable, trouble-free lubrication.

NOTE THESE IMPORTANT ANSUL FEATURES —

- *Lower floc point.
- *50% lower wax content.
- Moisture — ANSUL CONTROLLED minimum.
- *Lower pour point.
- Rigidly checked for high stability.
- *Lowest affinity for moisture.
- New low price.
- Available in quart, 1-gallon and 2-gallon cans; also in 5-gallon and 55-gallon steel containers.

*Improved features

Ansul has greatly increased its Research facilities — expanded its Re-lites — and added new modern Pilot Plant facilities to better serve the Refrigeration industry.

ANSUL
CHEMICAL COMPANY
REFRIGERATION DIVISION
MARINETTE, WISCONSIN

ANSUL SULFUR DIOXIDE • ANSUL METHYL CHLORIDE • ANSUL OIL • KINETIC "FREON" REFRIGERANTS
ALSO MANUFACTURERS OF INDUSTRIAL CHEMICALS • DRY CHEMICAL FIRE EXTINGUISHERS

(Concluded from preceding page)

Temperature and Pressure Controls

Cause	No. of Calls
Adjustment required	23
Defective	10
Power element lost charge	5
Replaced	5
Points burned off	3
Erratic	3
Bellows	3
Sticking	2
Thermostatic control stuck	1
Pressure switch does not cut in	1
Loose terminals	1
Contacts	1
Adjusting knob broken	1
Not specified	30
Total	89

Compressors

Cause	No. of Calls
Seal	70
Worn or broken valve reeds	11
Gasket leaks	11
Inefficient	6
Valve plates	8
Frozen (mechanically)	4
Discharge valves	3
Compressor replaced	3
Noisy (needs overhaul or replacement)	2
Connecting rods	3
Knocking	1
Locked piston	1
Broken piston and pin	1
Broken rollator pin	1
Total	125

Electrical Troubles Other Than Motors

Cause	No. of Calls
Relay	12
Solenoid	8
Defective switch	7
Magnetic starter	6
Wiring	6
Fuse blown	6
Plug pulled or switch turned off	2
Line overloaded	1
Power failure	1
Defrost clock set wrong	1
Low voltage	1
Cord cut by fan blade	1
Butter conditioner causing radio static	1
Total	53

Evaporators

Cause	No. of Calls
Oil logged	1
Fins clogged (includes fins icy, dirty, and/or linty)	5
Poor circulation	1
Total	7

Condensers

Cause	No. of Calls
Dirty	12
Leaks	9
Broken tube	13
Dirty exterior	3
Dirty interior	3
Poor air circulation	3
Water strainer clogged	2
Condenser and compressor limed up	1
Total	46

Receivers

Cause	No. of Calls
Safety plug	4
Defective king valve	1
Total	5

Noisy

Cause	No. of Calls
Loose fan	3
Compressor lost oil (unit higher than evaporator)	1
Motor mounts	1
Motor and compressor coupling out of alignment	1
Fan motor	1
Loose pulley	1
Loose motor	1
Chattering liquid line	1
Not specified	5
Total	15

Water

Cause	No. of Calls
Water valve leaking	9
High water bill	2
Undersized valve	1
Clogged water strainer	1
Valve limed up	1
Low water pressure	1
Frozen water jacket	1
Float stuck	1
Water leak in cooler	1
Total	18

Oil

Cause	No. of Calls
Displaced	3
Shortage of oil	5
No oil	2
Wax in oil	1
Overcharge of oil	1
Total	12

Multiple Units

Cause	No. of Calls
One coil feeding more than the other	3
No wall valves	1
Not specified	1
Total	5

Hermetic Units

Cause	No. of Calls
Noisy (internal)	2
Motor dragging	1
Leaks	3
Leaky ceramic terminals	1
Refrigerant	1
Replaced unit	2
Total*	10

*Undoubtedly a good proportion of relay troubles reported in "Electrical Troubles Other than Motor" were connected to hermetic units.

Miscellaneous

Cause	No. of Calls
Frost back	4
Case too warm	4
Stuck sealed unit	4
Undersized equipment	4
Overcharge of refrigerant	3
General maintenance	3
Tighten flywheel	3
Case warm—due to cold weather	3
Start-up idle equipment	3
Dirt in system	3

All of coil not frosting	2
Will not run	2
Broken door handle	2
Leaky by-pass valve	2
Cases drying product	2
Oversized equipment	2
No ice cubes	2
Insufficient refrigeration	2
Door adjustment	2
Erratic operation	2
Broken fan blade	2
New door gasket	2
Lines too small	2
Defrosts on off cycle	2
Mixed refrigerants	1
Snap-action valve adjustment	1
Gas smell (from liquid wrench)	1
Valves	1
Low outboard bearing	1
Leak through back pressure valve	1
Condensation forming on meat case	1
Start up winter air conditioner	1
Salt deposit on drum causing freeze-up	1
Dirty air conditioning filters	1
Freeze-up	1
Not operating	1
Leaky check valve	1

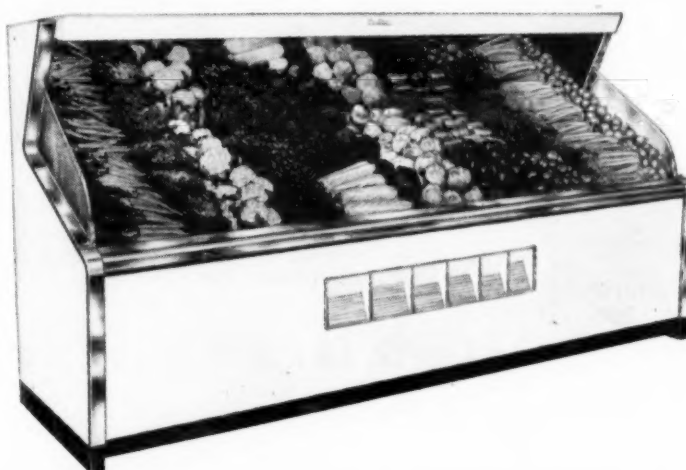
Explosion	1
Worn gears in ice cream freezer	1
Pre-cooler in bad shape and over-taxing	1
Will not freeze	1
Temprite frosting back	1
Valves	1
General overhaul	1
Repair ice crusher	1
Meat turns black in one day	1
Orchids disintegrate in new box	1
Leaky beer spigot	1
Broken control line	1
Shell ice—hard water	1
Leaky CO ₂ line to fountain	1
System full of air	1
Too much liquid dehydrant	1
Modulating steam valve on air conditioner	1
Constant temperature valve	1
Check valve worn	1
Water not cool enough (water cooler)	1
Freezes food	1
Intermediate valve stuck closed	1
Food coil—meat case	1
Ice cube maker	1
Adjust	1
Total	89

Table 3—Use of Refrigerants According to Frequency of Service Calls

Refrigerant	No. of Calls	Percentage	Percentage Not Including "Not Specified"
"Freon-12"	426	38.1	51.6
Methyl chloride	232	20.7	28.1
Sulphur dioxide	120	10.8	14.5
Ammonia	34	3.1	4.1
"Freon-22"	8	0.7	1.0
"Freon-114"	2	0.2	0.2
Carrene	1	0.1	0.1
Mixed refrigerants	3	0.3	0.4
Not specified	291	26.0	
Total	1,117	100.0	100.0

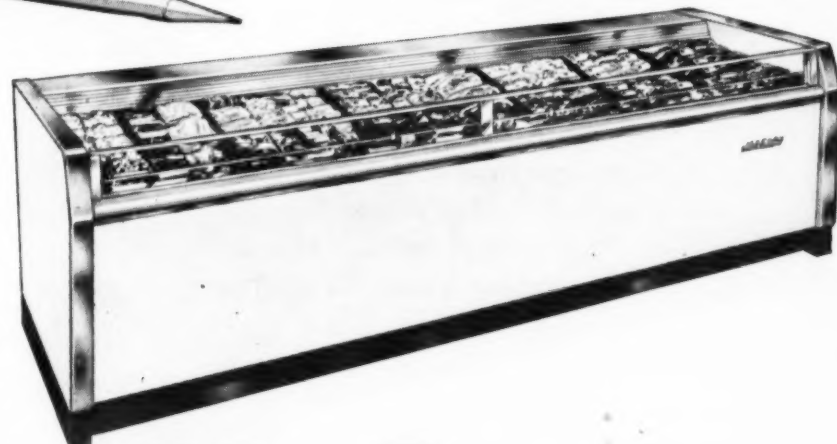
Just what your customers ordered!

McCray Koldflo owners and the McCray Engineering Department always work closely in getting information on how to improve popular display cases. This makes for the best combination in producing practical, merchandising equipment. The two self-service refrigerated displays shown here demonstrate the results of this teamwork.



McCray Koldflo Single-Duty Self-Service Meat Case

... offering a variety of superstructures with sliding "one-way" vision mirrors or glass panels. Also available without superstructure. Stock it from the rear ... shop it from the front ... even better customer-dealer convenience now built into this outstanding new meat case. Famous McCray Koldflo "balanced flow" refrigeration. Automatic defrosting available. Lengths: 8' and 11'.



Introducing the new McCray Koldflo Single-Duty Self-Service Produce Case

... featuring newly designed white porcelain front with stainless steel bumper rail, and black porcelain recessed panel at base, detachable for easy access to service controls. New bag holder, adjustable shelves, and 3" Fiberglass insulation. Built for single or continuous display. Many accessories available. Display length: 11'.

McCray

KOLD FLO

KEEP PACE WITH McCRAY—WRITE TODAY!

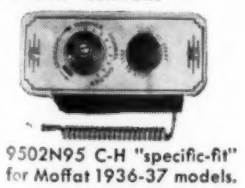
McCray Refrigerator Company, 1195 McCray Court, Kendallville, Indiana
Please send me information on the complete line of McCray Koldflo commercial refrigeration equipment.

Name _____
Address _____
City _____ Zone _____ State _____

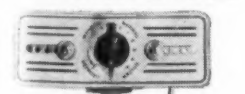
NO MATTER WHAT —it's here!

No matter which one of a thousand refrigerator models made since 1925, you will find a "specific-fit" replacement unit for it in Cutler-Hammer's Line.

You know you're right when you use C-H "specific-fit" controls.



9502N95 C-H "specific-fit" for Moffat 1936-37 models.



9521N43 C-H "specific-fit" for Briggs 1938 models.



9502N376 C-H "specific-fit" for Mayflower and True 1933-34-35-36 models.



9521N85 C-H "specific-fit" for Philco 1940 models.

Want to save time and trouble on your refrigeration control replacements? Then make the Cutler-Hammer refrigeration control catalog your standard "guide" on replacements. Here you will find "specific-fit" units which are not merely listed but already manufactured by Cutler-Hammer for more than 1,000 individual refrigerator models which the industry has produced since 1925. No "modifying," no fussing, no compromises, when you put in C-H "specific-fit" replacement control units. And you'll also quickly see how the widely-known Cutler-Hammer name (advertised in The Saturday Evening Post, Time, Newsweek, American Home, Better Homes & Gardens, House & Garden, etc.) builds customer confidence and good will. The C-H refrigeration control catalog, as well as the items you need, are available through your authorized C-H refrigeration wholesaler. Do not forget, this C-H refrigeration control line includes the outstanding general purpose replacement control (9521N9) for use with motors having "built-in" overload protection. CUTLER-HAMMER, Inc., 1362 St. Paul Avenue, Milwaukee 1, Wis.



9525N115 C-H "specific-fit" for Marquette Freezer

Featured by Cutler-Hammer refrigeration wholesalers and recommended by alert service dealers from coast to coast.

60th

Anniversary OF PRODUCING

COMMERCIAL REFRIGERATION FOR EVERY NEED

They'll Do It Every Time By Jimmy Hatlo



Do You Have 'Both Feet On The Ground'?

What the
serviceman
should know
about "VIRGINIA"
REFRIGERATION
products

"EXTRA DRY ESOTOO"
(B.P. +14°F.)

"Extra Dry" is the refrigeration grade SO₂ that service and maintenance engineers have endorsed for more than 20 years. Comes in all popular cylinder sizes.

"V-METH-L" (B.P. -10.7°F.)

Virginia Methyl Chloride is made specifically for refrigeration use. Low moisture content, low acidity and narrow boiling range recommend "V-Meth-L" for the most exacting requirements.

"FREON" REFRIGERANTS

"FREON-113"	"FREON-114"	"FREON-11"
Boiling Point 117.6°F.	Boiling Point 38.0°F.	Boiling Point 74.7°F.
"FREON-12"	"FREON-22"	
Boiling Point -21.6°F.	Boiling Point -41.4°F.	

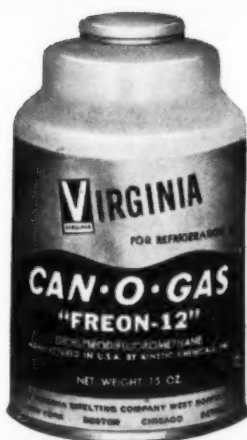
Virginia Smelting Company is distributor for "Kinetic" Chemicals "Freon" Refrigerants and for "Suniso" Refrigeration Oils.

TO CHARGE A SYSTEM, USE REFRIGERANTS THAT ARE
CONSISTENTLY PURE, CONSISTENTLY SURE

**"VIRGINIA" CAN-O-GAS—THE MODERN
METHOD OF CHARGING A SYSTEM**

Handy, throw-away, no-deposit can. The perfect way to charge hermetic systems, water coolers, beverage coolers, vendors. Available filled with "Freon-12" (15 oz.) or "Freon-114" (16 oz.). Each can is precision-filled to make certain the refrigerant is clean and dry. Can-O-Gas features a simple, practical clip-on opener which fits small valves designed for

this use. Slip it on the can; turn to puncture seal. It's leakproof, foolproof.



VIRGINIA
Refrigerants

ASK YOUR WHOLESALE
OR WRITE
VIRGINIA SMELTING
COMPANY

WEST NORFOLK, VIRGINIA
PHILADELPHIA • NEW YORK • BOSTON
CHICAGO • DETROIT • ATLANTA

AN INTERNATIONAL INSTITUTION • SUBSCRIBERS ALL OVER THE WORLD

Trade Mark
registered
U. S. Patent
Office
Est. 1926



AIR CONDITIONING AND
REFRIGERATION *News*

Copyright
1951,
Business News
Publishing Co.

F. M. COCKRELL, Founder

Published Every Monday by BUSINESS NEWS PUBLISHING CO.
450 W. Fort St., Detroit 26, Mich. Telephone Woodward 2-0924.

Subscription Rates: U. S. and Possessions, Canada, and all countries in the Pan-American Postal Union: \$5.00 per year; 2 years \$8.00. All other foreign countries: \$7.00 per year. Single copy price, 20 cents. Ten or more copies, 15 cents each; 50 or more copies, 10 cents each. Please send remittance with order.

GEORGE F. TAUBENECK
Editor and Publisher

PHIL B. REDEKER, Editorial Director

C. DALE MERICLE, Associate Editor

JOHN SWEET, Assistant Editor

HUGH MAHAR, Assistant Editor

GEORGE HANNING, Assistant Editor

MARGARET DEAN, Assistant Editor

Editorial Assistants: BERNICE SHEP-
LOW, DOROTHY FRITZ.

E. L. HENDERSON, General Manager

ROBERT M. PRICE, Adv. Mgr.

ALLEN SCHILDHAMMER, Western
Adv. Mgr.

SHIRLEY J. KROHN, Adv. Secy.

WALTER J. SCHULER, Production Mgr.

GEORGE CASEY, Circulation Manager

Member, Audit Bureau of Circulations. Member, Associated Business Papers.

VOLUME 64, No. 15, SERIAL No. 1,186, DECEMBER 10, 1951

"I have always felt that whatever the Divine Providence permitted to occur I was not too proud to report. The people are not served by pussyfooting, or by that sort of journalism in which nobody will ask who is the editor of a paper or the writer of an article, and nobody will care."—Charles A. Dana.

**More Parts Needed—
& Better Salesmen
Of Complete Units**

THOUSANDS of manufactured products—from tailored fittings to well-designed heat exchangers, and from coveted sheet steel to apportioned scarce valves—are needed to manufacture finished refrigeration and air conditioning units.

And as a replacement and accessory equipment to keep the millions—yes millions—of existing refrigeration installations operating efficiently—many more hundreds of thousands of these vital "parts" must be produced each year.

As the "original equipment" business expands, so must the "parts" business expand in corollary.

Parts and accessory equipment manufacturers have a huge stake in the expansion of the refrigeration and air conditioning industry.

Product refinement and improvement, cultivation of eager new markets plus the introduction of new ideas and new uses, should up the parts and accessories market well into the two-million-dollar bracket within the next few years.

The manufacturer of complete units buys huge quantities of steel, aluminum, copper, and many other metals—along with accumulators, V-belts, valves and fittings, fans, ball bearings, breaker strips, paints and finishes, coils, capacitors, gaskets, evaporators, insulation, hardware, ice cube trays, dehydrators, receivers, cold-plates, lubricants, refrigerants, tubing, controls, switches, motors (by the millions), thermostats, testing instruments, blower wheels, etc., etc.

A complete inventory of the raw materials, parts, and semi-finished items which purchasing agents in our industry buy would run from A to Z, from Alpha to Infinitum—and into a helluva lot of money.

To the parts and equipment wholesaler, to the parts fabricator and the manufacturer's agent, to the independent serviceman—substantial quantities of refrigeration replacement parts and materials are diverted. However:

Any executive who studies this expanding business will admit that the development and growth of the entire industry does depend, in the final analysis, on the ingenuity and aggressiveness of its promotion by original equipment dealers and salesmen. To sell more parts, the industry must sell more original equipment. The more original equipment in use, the more repair and replacement parts will be needed.

The indoctrinating and training of these original equipment dealers and salesmen, therefore, is perhaps the most important task which the manufacturer, distributor, and dealer of refrigeration and air conditioning equipment will ever face.

Given the information that they need, and the inspiration which they deserve, qualified salesmen in the refrigeration, home appliance, and air conditioning business should ring up annual sales volumes and profits that will make past performances seem puny in comparison.

But they must be trained, and kept at work, and inspired.

In this all-consuming task, we hope to play a modest role, through our books, and through the continuing educational program provided in the regular weekly issues of AIR CONDITIONING & REFRIGERATION NEWS.

More Expensive Than Overhead

Price Cutting, Salesmen's Promiscuous Promises Cut Deep Into Profits of Commercial Equipment Sales

CHICAGO—"If we, in the refrigeration industry, are alerted to the alarming effect which price cutting has on our profits and the injury which salesmen's promiscuous promises can inflict on our goodwill, then we will at least have hurdled a major obstacle among the problems of management today."

That was the conclusion reached by Joseph S. Lipack, executive vice president of Super-Cold New York Corp., in a talk before the fifth annual convention of the National Commercial Refrigerator Sales Association here recently.

Lipack asserted, "It is a strange paradox that we, in the refrigeration business, who preach profits to our customers, who sell our equipment on the strength of the profits which can be made from the use of the products, are the very first ones to overlook the fundamental principles which we are in business for, namely, to make a legitimate profit."

No Magic Formula

Lipack said that he offered no magic formula by which a business will wind up with a profit despite its policies, but he could point out major pitfalls that are largely responsible for the lack of profits.

His talk, slightly condensed, follows:

"The financial statements your accountants prepare for you, monthly or yearly, list many items of expense. These expenses are broken down into various categories and upon examination of them, you find out how much you spent to operate your business.

"However, one item never appears, an item which plays one of the major parts in your profit and loss picture. If we were aware of the extent of this expense, which is far greater than your rent and greater than your administrative and selling expense, we should headline it on our statements.

"Yet we never realize how costly it really is. That item, gentlemen, is called 'price cutting.'

3 Methods of Price Cutting

"Now price cutting can be done in many ways. I would like to give you the three major methods of such a practice.

"First, where you actually sell a piece of equipment for less than your scheduled or established selling price. At that point you are aware of the fact that you have actually given away a part of your legitimate profit. But you are kidding yourself along that you're still making money on such a sale.

"Second, giving away accessories which cost you out-of-pocket money. Automobile companies do not give away accessories. As a matter of fact, they charge full list for every accessory sold.

"Yet we in the refrigeration business, very often throw in an extra set of platters, an extra scale stand, or perhaps a wrapping board and many other 'small' items for which no charge is made to the customer. This definitely affects your profit picture.

"Third, and by far the chief offender, is permitting trade-ins to predominate your acceptance of a sale. In other words, allowing fabulous sums of money for a traded-in piece of equipment on the premise that if a competitor can do it, so can you.

"In this instance, we simply attempt to ease our own conscience by saying 'I'm not permitting price cutting in my business,' but you do take back a piece of obsolete, outmoded equipment which has seen far better days and is no longer a saleable item, and you place a value on it far in excess of what its actual worth may be.

False Values

"This equipment must be trucked back to your warehouse, stored there indefinitely taking up valuable space, it must be reconditioned for the possibility of a sale, and if and when resold, you must pay a salesman's commission and then re-deliver and re-install the equipment to some unsuspecting customer.

"If the equipment had outlived its usefulness to one storekeeper, then how can it be resold to someone else with justification?

"The wind-up is that these trade-ins simply lay around in your warehouse without being sold and at the end of the year you find that it represents your profit.

"If you analyze these various price cutting methods you will be amazed at the amount of dollars and cents it has cost you. Therefore, the thing to remember is that every time you accept one of these sales you are driving a nail in your business coffin.

"Manufacturers of refrigerated equipment have spent thousands of dollars trying to educate their dealers because they know that a healthy dealer is one who can make a profit for himself and they have tried in every way to point out the dangers of price cutting.

Tempted by a Seemingly Good Deal

"However, temptation, I suppose, gets the best of us and we do it despite the fact that we know we are actually losing money. Recently, our own NCRSA completed a survey on the operating expenses of some of its members.

"I analyzed these figures very carefully and I found that out of the 22 companies reporting, 10 made no profit at all at the end of the calendar or fiscal year. Of the 12 who did make profits, these were so small that it was incredible. As a matter of fact, the 12 averaged net profits after all expenses and taxes of only 2.7%.

"This meant that on every \$1,000 sale, a profit of only \$27 net was made. When you stop to consider how small this net profit is, then the alarming fact is brought home to you that when you cut a price in the sale of any piece of equipment, your profits are being poured down the drain.

"Another major headache which

confronts the distributor today, and which not only affects his profits but creates bad will from his customer, is the loose promises some refrigeration salesmen make in order to obtain a sale.

"Some of them have a great faculty for promising everything but the kitchen sink. How to get around this is another problem which management is faced with.

Why Salesmen Make Promises

"Primarily, I believe, the reason why some salesmen are prone to make promises which they know their company cannot possibly live up to are due to:

"1. Lack of knowledge of their product.

"2. Insecurity in their ability to sell the customer on the merits of the equipment.

"3. Taking the line of least resistance.

"4. High pressure salesmanship.

"I know one of these 'so-called' salesmen whose promises were fantastic. He promised a woman purchaser a grand piano and another one a horse-drawn sleigh. Ridiculous, isn't it? Yet, that is exactly what some of them will do to promote a sale.

"Others have promised complete store remodeling jobs, linoleum for

the floor, electric signs for the windows, and many other just as unbelievable things.

"We, in our company, have taken many steps to overcome these nuisances. First, we are very careful in the hiring of our salesmen. We attempt from the very beginning to place our advertisements for salesmen with complete sincerity and honesty to attract only the energetic man who is seeking a connection with permanence and security which will insure gainful employment.

"Such advertisements will usually eliminate the fast-thinking, sharp-shooting promoter. We screen all applicants thoroughly and investigate all references. Complete sales training courses are given as we firmly believe that competence is the cure for competition.

"Second, every salesman knows exactly what commission he earns when he makes a sale and he knows, too, that 'extras' or 'promises,' whatever they may be called, are sold to a customer who wants them and not given as a free gift.

"There are other measures which can be taken to avoid salesman promises. A salesman completing a sale is required to leave with his customer a temporary copy of his order.

"This serves a two-fold purpose; a receipt for the customer's down payment and a clear and concise record of exactly what he has agreed to purchase and pay for.

Official Contract Follows

"This is followed up by an additional accepted copy of his contract, properly signed by an officer of our company, together with a letter of acknowledgment, informing the cus-

tomers to preserve his contract and advising him that this embodies all the terms and conditions contracted for.

"If he has any other understanding of his agreement, he must immediately notify our office. Consequently, any 'promise' made by a salesman and not embodied in the contract can immediately be detected and questioned.

"In this way, a sale starts off on the right foot. The customer is in no way antagonized by the idea that the salesman has made a promise his company cannot fulfill and there is no danger of the loss of good faith and confidence which plays an important part in company customer relationships.

Hit Salesmen Where It Hurts—His Pocketbook

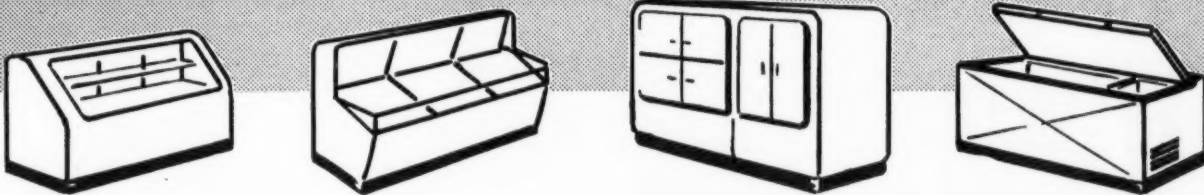
"Despite these precautions, however, a promise is sometimes made which reflects on the company. Then there is one thing left to do. Hit the salesman where it hurts the most—his pocketbook—by deducting from his commission the cost of his 'promise.' You will usually find that such practices will then cease.

"The day of the high pressure salesman has passed. Education, training, and the proper application of common sense should be the keynote of a successful organization."

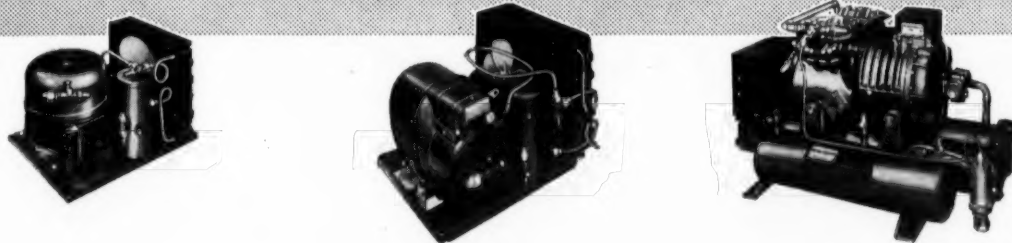
MISSING SOMETHING?

More and better useful information is yours for the asking. See "What's New" page. Use Key No. for fastest service.

GOOD FIXTURES SERVE BETTER

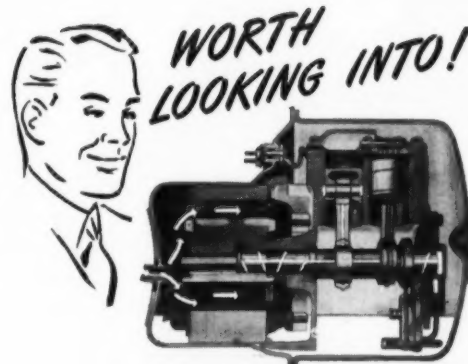


WHEN THEY'RE EQUIPPED WITH



Servel SUPERMETICS

The trend to Servel continues to grow. The proved economy and outstanding performance record of Servel Supermetics plus the amazingly liberal factory warranty make an unbeatable combination. The warranty plan gives 5 years' protection on sizes up through 1 HP — 1 year on larger sizes. It relieves fixture manufacturers of all parts inventory and field replacement problems. Customers are assured of protection and satisfaction. When need arises, customers deal quickly, conveniently through local sales-service outlets with near-by Servel wholesale suppliers. No delay. No red tape. No deposit required.



Write us today to acquaint yourself with the many ways that the combination of your fixtures and Servel Supermetic condensing units benefit you.

Servel, INC. ELECTRIC REFRIGERATION DIVISION, EVANSVILLE 20, INDIANA

YOU CAN'T BEAT THE VICTOR

DISPLAY CASE LINE

- Every type of display case.
- For Meats, Vegetables, Fish, Delicatessen and Dairy Products.
- Self-Service and conventional cases.
- Variety of sizes and endless models for any store layout.
- Economical and Efficient.
- Displays that Sell.



For information write:

VICTOR

MANUFACTURERS OF THE FAMOUS VICTOR QUICKFREEZE PRODUCTS CORPORATION • HAGERSTOWN, MD.

Estimating Air Conditioning Proposals

Thinking Job Through, Offering Alternate Installation Methods To Suit Customer Best Will Create Business and Satisfaction

CHICAGO—"A different approach is needed by many of us contractors in estimating our air conditioning jobs."

So Albert G. Weil of Refrigeration Maintenance Corp., Chicago, told the Refrigeration & Air Conditioning Contractors Association during the group's 6th annual convention.

He made the statement in describing what he called the "analytical and creative" method of estimating air conditioning proposals. This method, he explained, consists of "thinking a job through and offering to your customer alternates (to prepared specifications), one of which will suit his purpose best."

On this type of estimate, Weil stressed, "you can ask for and receive a better markup than is the case on the specified job on which most of your competitors will bid."

"Your bid will be in accordance with the specifications and plans, of course, but your alternate estimates—tailor-made installations to suit the user's exact needs—will lift you head and shoulders above your competitors. This analytical and creative method of estimating will pay off in increased contract awards and in profits."

Weil said the refrigeration and air conditioning contractor, "in order to remain in business and be successful, must be the world's greatest economist."

"Who but one of us crazy contractors would have courage, in these uncertain times, to stick our neck out on the chance of a potential and problematical profit—for a job that might not be started for 12 months or longer and maybe not finished for a period of two years or more?"

"We dare to say, when we sign a contract, that wages are going to be at such and such a rate at the time they are required, that material is going to be available and will cost exactly so much when it is needed, that governmental restrictions will not be so harsh that we cannot complete our job."

"We have to gaze into the crystal ball to foresee these things. We have to bet that we are seeing clearly. We have to bet that our judgment is right and that all factors contributing to a successful conclusion will fall into place when and where they should and at the cost we have figured."

"You might say that the contractor in business is better off to close up his shop, go out to the racetrack, use the Chinese pick and punch system of selecting a horse, and place his money on the nose of that nag."

"After he has placed a bet, the result is out of his hands. It's then up to the horse and the jockey. Much the same is true nowadays when a contractor is awarded a construction job."

"With the increasing costs and restrictions which the government imposes, it's no wonder that many people in business today can't make the grade."

"I had brought home to me forcibly the other day, a case like this. I bumped into a friend of mine whom I had not seen for quite some time. He was a manufacturer of coats and jackets and had built a very successful business over the past five years."

"He took an order from Uncle Sam on a large contract for a special type jacket. The manufacturing processes in making this garment were no novelty to him. However, the increased cost of material and labor which he experienced over a period of time was something that he had not foreseen."

"His costs increased so rapidly that he went broke in fulfilling the order. As far as being able to secure any adjustment from the government contracting agency, this was completely out."

"This sort of situation may call to your mind some friend of yours who has been in the air conditioning contracting business, who tried to shave too close to get a particular job, or who did not gaze into the crystal ball and see clearly enough. Your risks, as a contractor, are great and your profits are generally modest, even if you do bet right."

"Your cost of doing business, which

includes estimating cost, material cost, labor cost, overhead cost, contingency cost, and tax cost, is something you know, or should know, as it applies to your particular operation."

"For me to tell you how to figure these costs would be presumptuous. Your local conditions and competition, knowledge, training, and experience are the determining factors in pricing your jobs."

"But, if you knew of a method of estimating your air conditioning work on a basis that would bring to you a higher percentage of contract awards as against the total that you figure, and a greater percentage of profits on such awards, wouldn't you be interested? Such a method is the analytical and creative estimate."

"If you cause yourself to think of the job which you are working on, you will come up with creative ideas."

Analyze Customer's Needs

"If you analyze the needs of your customer carefully and thoughtfully, you will create a type of estimate which will offer to your customer one or more improvements—improvements in design, operation, performance, maintenance, accessibility, compactness, noise level, attractiveness, price."

"I mention price last because it isn't so important in the over-all scheme of things if you are able to supply something to do a better job."

"You can buy a suit for yourself for \$50, or a better wearing, better quality, better fitting one for \$100. If you feel that you receive more in styling, fabric, and fit by paying a tailor \$150 to make a suit for you, that is what you may buy."

"You, as an individual, have these various suit selections open to you. Your customers are entitled to the same option of fabric, style, and fit in purchasing their air conditioning. Analytical, creative estimating for their needs will determine their purchase from you."

Creative Estimates Will Get Extra Business

"By means of analytical and creative estimates, you will be converting jobs, which you might otherwise lose, into profitable business."

"How do you estimate a job? Do you just pick up all the specs and plans, go to work and figure; or do you sit down first, scan the requirements, and then analyze? Do you

first ask yourself these questions?

"(1) Do I want to bid this job?"
"(2) Is it within my scope of size and experience? Is it the type of equipment on which I have built my business—package equipment—the erection type of installation—or a large engineering project?"

"(3) Is it the type of work on which I can make a profit?"

"(4) Are my chances of getting this job good, if my bid is right or if I am low bidder?"

"(5) Am I justified in spending the amount of money that it will cost me to estimate this job—in time, in travel, in overhead, in diversion of my efforts from my other business?"

(Concluded on next page)



**EVERYTHING
YOUR
CUSTOMER
WANTS**

IN A PACKAGE AIR CONDITIONER

Here are the reasons why your customer will be happy with his Worthington Package Air Conditioner:

QUIET—acoustically-insulated cabinet . . . no belts to wear or get out of line

VIBRATION-LESS—smooth-floating multi-mounted compressor . . . dynamically-balanced fan

TROUBLE-FREE—compressor hermetically-sealed against dust and moisture . . . no pulleys, couplings or seals

NO ATTENTION NEEDED—pressure-type oiling . . . never needs replenishing

LONG LIFE—compressor surfaces finished to micro-inch accuracy . . . over-size bearings . . . four rings per piston . . . dynamically-balanced crankshaft

SAFE—high-pressure cut-out . . . high temperature safety switch control . . . finger-tip adjustment of louvers

ECONOMICAL—thermally-insulated . . . large copper-finned cooling coils . . . Worthington Feather* Valves

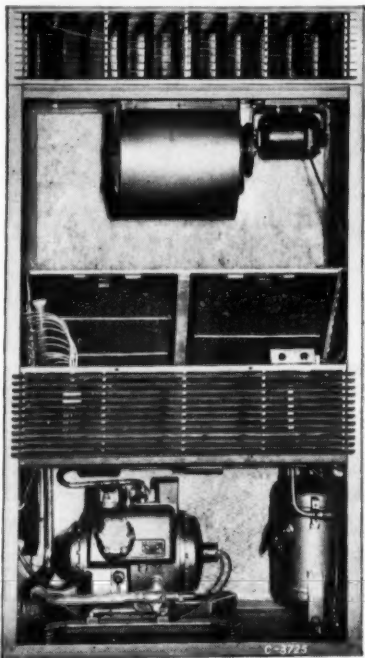
ATTRACTIVE—plastic baked-enamel finish, scratch-resisting, washable . . . rounded corners, no projections . . . no "sweating"

Each Worthington unit—3, 5 and 7½ ton sizes**—is built to the same high quality standards as Worthington equipment for engineered systems, such as those described at the right.

Write for Bulletin C1100—B-29

*Reg. U. S. Pat. Off.

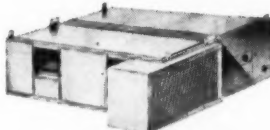
**Also, for remote location: 7½, 10, 15, 20, 25 ton units.



A BALANCED LINE ... A BALANCED FRANCHISE

A Worthington distributor can handle any job with exactly the right equipment because the Worthington line is the broadest.

In addition to package units, Worthington makes—



FAN AND COIL UNITS

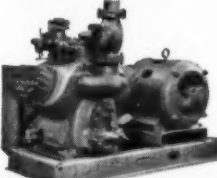
A complete line of evaporative condensers, evaporative coolers, air conditioning units, wet and dry product coolers for both Freon "12" and ammonia.

ALSO: Water coolers, valves, fittings, pumps.

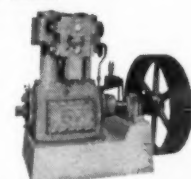


ROOM AIR CONDITIONERS

For use with central system—chilled water or direct expansion.



FREON REFRIGERATION MACHINES
2 to 125 tons.



AMMONIA COMPRESSORS
1 to 150 tons. Also ammonia boosters.

TAKE ADVANTAGE of the completeness of the Worthington line and capitalize on Worthington's national advertising. Find out why there's more worth in Worthington by writing to Worthington Pump and Machinery Corporation, Air Conditioning and Refrigeration Division, Harrison, New Jersey.

24A.1-9

WORTHINGTON



AIR CONDITIONING AND REFRIGERATION

M'CORD

CONDENSERS

NO JOINTS
•
MAXIMUM HEAT TRANSFER
•
COPPER BRAZED
•
FULL SIZE BENDS • NO JOINTS
•
COMPLETE RANGE OF SIZES
•
VARIOUS FIN WIDTHS
•

**UNDERWRITER
APPROVED**

UNDERWRITERS APPROVAL INSURES A
SATISFACTORY PRODUCT IN SERVICE.
Write for Engineering Information

M'CORD CORPORATION

DETROIT

ROTARY SEAL

Replacement Units

UNIT NO.

1115

**AVAILABLE FOR MORE THAN
900
COMPRESSOR MODELS**

*Easy to Install Efficient in Operation
Simple in Construction Economical*

For Commercial, Semi-Commercial, Air-Conditioning
and Home Refrigerator Compressors . . . Proven by
outstanding performance over 20 years!

AT ALL

THE *mechanical seals for*

ROTARY SEAL COMPANY
rotating shafts

LEADING JOBBERS

"Seal with Certainty!"

**2020 NORTH LARRABEE STREET
CHICAGO 14, ILLINOIS, U. S. A.**

CANADIAN AGENT: 2025 ADDINGTON AVENUE
MONTREAL 28, QUEBEC, CANADA

Make Several Estimates To Show Advantages Of Each Until 'Best' Method Is Found

(Concluded from preceding page)
activities? Or, should I go out and put that money on a horse?

"Remember, always, that whenever you make a bid, whenever you figure a job, whenever you provide an estimate to a customer, you are investing money.

"If you do keep this investment factor in mind and your analysis tells you to proceed with the estimate and to spend your money on the chance of getting the work, then proceed—but with your eyes wide open and a prayer.

"Before setting down any figures on paper, read your specifications and study your prints. A visit to the job site is advisable, if possible, because many times short cuts can be found through visual analysis.

"The specs and prints should be read and studied not once but often—enough so that you are able to write an outline of them in your own words, without reference to the typed word.

Prepare a Brief

"Jot down a brief of the job, as it has been presented to you, showing the compressors needed, their sizes, the evaporators, type and kind of piping, approximate runs, controls, location of equipment, miscellaneous items, labor involved, method of operation, and so on.

"Add to this any other items which the engineering genius, who has drafted these plans to the best of his knowledge and experience, has given you.

"Now you have come to the analytical and creative part. Sit back and dream a bit about this job. If you were going to lay out an installation to provide the things which are asked of you, would you create this identical job or would you add something, take something away, or create something new?

"We have all experienced the case of the drugstore that we have surveyed for a packaged air conditioning job. The unit might be placed in any one of six different locations, each with a certain advantage, but with the installation made in one spot and one manner, better results are achieved.

"Better, perhaps, from a space saving angle to the druggist, or from a shorter and more inexpensive run of fresh air and supply duct, or from the appearance standpoint, or from the angle of ease of servicing, or from any one of a dozen other reasons.

"Do you, from your practical experience, training, and knowledge, think and feel that the prepared spe-

cifications give the best way to do this job, the most economical way for the results wanted? Or do you, after your analysis, feel that there is a better way, a more economical way, a lower operating cost way, or a way combining any of these?

"If you do, then make another brief. This time, list your ideas on equipment, layout, method of operation. Add two more things: how the system will work and what the system will accomplish.

Cost Not Too Vital At This Stage

"The cost of the job at this stage of your creation is not too important. Don't stop with your ideas here, if your brain is fertile and you have a second, third, or fourth method. List each of them in an outline form.

"Then, analyze all of your brain children. The first may offer an advantage that the second does not, but the second may provide a flexibility not encountered in the first. Each will have its distinction.

"Don't stop here, but analyze further. Consider the type of service to which this installation will be put. Look into the hours during which the equipment will be operated, the seasons, the locality. Consider that you are the customer and create in your mind the kind of flexible operation which you as the customer will want.

"Then, and not until then, can you determine which of the various methods which you have listed should be the one to be installed. When you do this, you will truly create the installation which will appeal to and satisfy your user.

"Thinking a job through and offering to your customer alternates, one of which will suit his purpose best, is the way to create business for you and a satisfied customer for your organization.

"Your customer will realize, from the presentation of these alternates, that you have given his needs the creative thinking and the all-around analysis for his good that will result in the best job for him. His respect for you will be increased and you will command his attention."

Allen & Price Refrigeration In Move to New Location

LOS ANGELES—Allen & Price Refrigeration Co. has announced that it has moved from 107 S. Western Ave. to 3204-6-8 W. Washington Blvd. where it now occupies a single large room with a 60-ft. frontage.

The firm is a closed corporation operated by I. R. Allen and C. W. Price. It was started up in 1949 and has already undergone two expansions.

The firm handles a large variety of used commercial refrigeration equipment and, according to Allen, "most everything in commercial refrigeration" including Perlick beer dispensing equipment.

Before going into business with each other, Allen was a partner in Royal Refrigeration Co. and Price was with Weber Showcase & Fixture Co.



ANTHONY MASIELLO C. KENNETH JUNO

Remington Names Juno, Masiello to New Posts

AUBURN, N. Y.—Appointment of two additional members to the sales department of Remington Air Conditioning, division of Remington Corp. here, has been announced by Herbert L. Laube, president.

Anthony G. Masiello has been appointed assistant to the general sales manager and C. Kenneth Juno has assumed the duties of advertising manager.

In making known the appointments, Laube stated that the manufacture and sale of the Remington line of room air conditioners had increased substantially in 1951, and the creation of these new positions would enable Remington to market more efficiently an anticipated further increase in 1952.

Less than a year ago Remington moved to new and larger quarters in Auburn which provided for expanded manufacturing activities and modern assembly production. This increase in production and sales has required a greatly expanded program in both plant and office.

Masiello comes to Remington with a background of 12 years in the air conditioning field. A native of Syracuse, he joined the Carrier organization in 1939. After spending considerable time in various departments of the main office, he joined the home office, sales staff, in 1946. Two years later he was transferred to the Philadelphia office as manager of self-contained unit sales for this district.

In his new position with Remington, Masiello will serve as assistant to E. A. Bonneville, general sales manager.

Juno has had some 12 years' experience in the advertising field. A native of Auburn, he was formerly assistant to the advertising manager of Columbian Rope Co. He has had wide experience in the hardware, marine, and home furnishings fields.

Juno has been associated with Remington for the past three months and has been instrumental in setting up Remington's new advertising department. His duties will include supervision of the over-all Remington advertising program.

Proctor Discontinues Appliance Production At Phila. Factory

PHILADELPHIA—Production of home appliances at its plant here has been discontinued by Proctor Electric Co. in order to begin a major conversion to defense work.

A. H. Caesar, production vice president, explained that the object of the shut-down is to "integrate our defense work and the civilian production of our irons and toasters to the best interests of our distributors and dealers."

Proctor is manufacturing air ducts for jet engines and cockpit floors for the Republic "Thunderjet."

When the conversion is completed, civilian production in the first quarter of next year will total about 50% of output in the first quarter of this year—provided there is no further reduction in the availability of materials, the company estimated.

Philco Declares 40-Cent Dividend

PHILADELPHIA—The board of directors of Philco Corp. recently declared the regular quarterly dividend of 40 cents per share on the company's common stock payable Dec. 12 to holders of record Dec. 1.

The board also declared the regular quarterly dividend of 93¢ cents per share on the corporation's preferred stock, 3% Series A, payable Jan. 1, 1952 to shareholders of record Dec. 15.

Cool Congregation

5-Hp. Unit Does Work of 30-Hp. by Using 'Accumulator System' In Church Installation

MOBILE, Ala.—Designing systems which offer maximum operating economy—always a prime concern with church board of directors—has led to many such church contracts for Air Conditioning Engineers, Inc., Carrier dealer here.

J. M. Hastie, engineer and head of the firm, has built up an enviable reputation in the years since 1941 for church comfort cooling, and in many instances, has won contracts over competitive lower bids on the basis of a lower over-all operating cost.

Typical of the installations which the firm has engineered and installed is an "accumulator system" which has been installed in the All Saints Episcopal Church in Mobile. Here, where a small congregation and limited grants forbade installation of the 35 to 40 tons of capacity actually required, Hastie decided upon the ideal solution using only 5 tons of connected horsepower.

This is an accumulator system using the 5-ton Carrier unit to build up an accumulation of ice on special plates in an insulated plenum chamber in the basement of the building. Ice is built up rapidly, forming a thick coating over a series of plates, and the "stored up cold" can be delivered rapidly to cool the auditorium, Sunday school area, and other public rooms in the church.

"The total output is equivalent to

30 tons of refrigeration capacity," Hastie said, "but, of course, during the inactive days of the week, the church's finances are dented only to the extent of maintaining 5 tons of cooling power."

Under actual practice, the cold stored up in the ice-covered plates is released early Sunday morning, and cools down the church auditorium to a comfortable 78° to 80° at 50% relative humidity for Sunday services.

Due to the fact that "24-hour recovery factor" was built into the system, the plates can be thoroughly recharged with sufficient ice to again represent 30 tons of cooling output, within 24 hours. This latter element, incidentally, has proven of prime importance, according to the southern air conditioning engineer, inasmuch as the church, when able to provide cool surroundings, found use of its rooms picking up rapidly.

At the most conservative of estimates, operating cost is at least 25% less, and savings will probably amount to 10% or more each year. The difference in cost of installing a 30 to 35-ton air conditioning system is considerable, Hastie further pointed out.

Many representatives of other churches in southern states have visited the All Saints Episcopal Church to study the unusual system, and to study possible plans for adapting it for their own edifices.

They SEE more... THEY BUY more!



Full Vision Low Temperature MERCHANDISERS

ACE Merchandisers were designed to do one job and ONE JOB ONLY—Sell merchandise fast! That is why you see more and more ACE units in busy stores throughout America. Certainly it takes a lot of engineering know-how and a terrific amount of styling research... the end result speaks for itself, for store owners everywhere say, "The busiest place is around the ACE!" Where there's action there's PROFIT!

We want you to know more about ACE Cabinets. Drop us a line for complete information on the greatest PROFIT line in the country.

Ace Cabinet Corp.
New Bedford, Mass.

Please address all inquiries to: Exec. Sales Office:
1457 Broadway • New York 18, N. Y.
Export Dept.: 39 Broadway, New York 6, N. Y.

Manufacturers of Frozen Food Display Cabinets, Ice Cream Dispensing Cabinets, Farm Freezers and Bobtails.

Genuine Joe says:
"Always buy Genuine WAGNER Brushes"

Replace brushes in Wagner Motors with genuine Wagner brushes because Wagner correct grade brushes give maximum performance, commutator and brush life. Identify them by the name WAGNER on the brushes.

Wagner Electric Corporation
6471 PLYMOUTH AVENUE, SAINT LOUIS 14, MO., U.S.A.

WANTED NATIONAL SERVICE MANAGER

Top-name Manufacturer in room air conditioner industry and related refrigeration products has big-sized opportunity for a man truly capable of filling the shoes and getting the job done that goes with the title. We want a real executive that can induce cooperative effort and productively coordinate the varied activities in this important department. We want a man who can organize and supervise. We want an executive familiar with service requirements between the factory and its appliance distributors, dealers, and the product buying customer. Our company is well established, we're big, and still growing fast. Location is a large city in western New York. If you are a real candidate for this top executive responsibility running our Service Department, we'd like to have your application. What you tell us will be treated confidentially. Reply Box 3870, Air Conditioning & Refrigeration News.

complete kitchen in 27 1/2"

Complete 48" Kitchen-With-Oven

MODEL R-520

MODEL S-550

L & K 48" KITCHEN... For the first time here's a 48" kitchen complete with oven—made possible by combining any 20" apartment range with General's L & K Kitchen, Model S-550. Has 4 cu. ft. refrigerator, storage drawer, and features a one-piece 12 x 16 inch porcelain sink-back splash-drainboard. 5 yr. guarantee.

coOK ON YOUR REFRIGERATOR

GAS-ELECTRIC GENERAL CHEF. Combines electric refrigeration with cooking top, gas or electric (110 or 220 v.). Requires only 4.1 sq. ft. of space. 5 year guarantee.

DRAINBOARD

SINK

BURNERS

REFRIGERATOR

STORAGE DRAWER

L & K 27 1/2" KITCHEN... Complete 27 1/2" kitchen unit combines 4 cu. ft. refrigerator, sink, drainboard, storage drawer, and 3-burner gas range adjustable to natural, manufactured, or bottled (L.P.) gases. Model R-520 also available with 3 electric burners for 220 v., or 2 electric burners for 110 v. "plug-in" use. 5 year guarantee.

These units
advertised
in

LIFE

GENERAL
air conditioning corp.
4512 E. Dunham St., Los Angeles 23, Calif.
NATIONWIDE SALES AND SERVICE

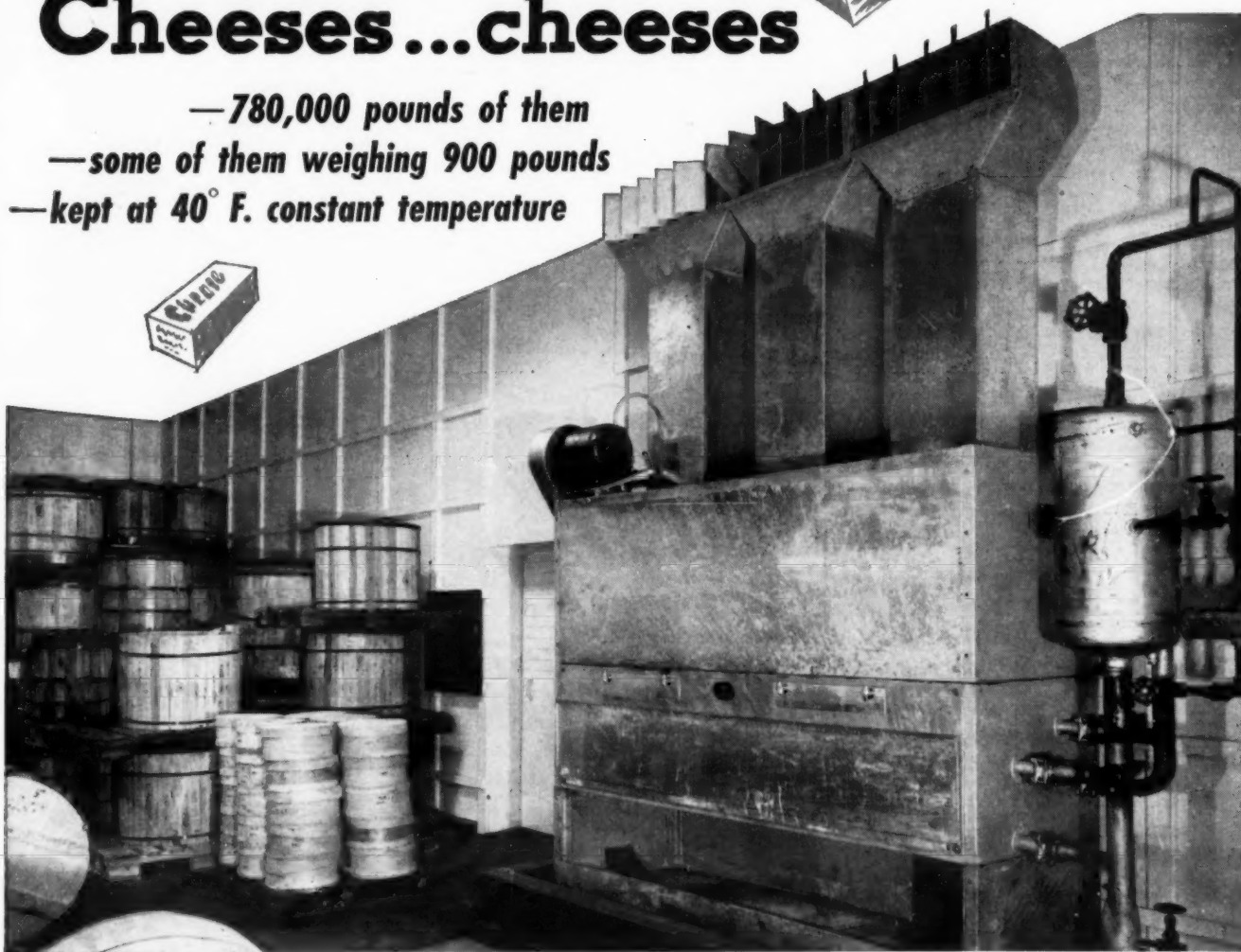
THE MASTER SERVICE MANUALS - - -

— and other books of the Refrigeration Library are depended upon as textbooks in trade schools from coast to coast.

BUSINESS NEWS PUBLISHING CO., DETROIT

Cheeses...cheeses

—780,000 pounds of them
—some of them weighing 900 pounds
—kept at 40° F. constant temperature



At the San Francisco Plant of Kraft Foods Company, a single ACME Blo-Cold unit keeps the entire stocks at constant 40° F. More than three-quarters of a million pounds of Cheeses are stored in a room 40 x 60 feet. Some of the "big cheeses" weigh as much as 900 pounds. The single ACME Blo-Cold unit maintains a constant 40° temperature, easily and without any mechanical difficulty.

The versatility of the ACME Blo-Cold unit makes it adaptable to a wide variety of applications. Throughout the country thousands of Blo-Cold installations are giving good service and maintaining a reputation for dependable low-cost operation. Operational data and experience from these thousands of installations is your best guarantee of results, when you specify ACME. And don't forget that ACME Refrigeration Components are used by all the major job refrigeration companies.

Whatever your requirements, ACME engineers will cooperate in finding a simple low-cost solution to your problem. Write today — no obligation.



ACME INDUSTRIES, INC., JACKSON, MICHIGAN, U.S.A.
Air Conditioning and Refrigeration Division

CONTINUOUSLY SERVING THE AIR CONDITIONING AND REFRIGERATION INDUSTRY SINCE 1919

What's New

When requesting further information on new products, please use "Information Center" form.

'Display-All' Door Redesigned, Improved



KEY NO. A-1220

LOS ANGELES—The "Display-All" glass refrigerator door manufactured by American Glass Refrigerator Door Co. here has recently been redesigned and improved, according to the company.

The doors use two-lite Thermopane glass panels, framed with a combination of highly polished extruded aluminum and heavy extruded rubber insulation, assembled in such a manner as to expose only rubber and glass to the fixture interior and

polished aluminum and glass to the public.

Doors are built in units, each consisting of a 23 by 52% mullion frame and door. On application the fixture manufacturer can rapidly interlock as many frames as desired without the use of screws or bolts. After inserting into the fixture opening the frames are secured with concealed wood screws. The doors are then hung in place by snapping on to full length extruded aluminum piano hinges. No screws are required in hanging the doors.

The frames are equipped with extruded aluminum strips that trim the opening. Rubber stripping is furnished to line the fixture opening and form a fixture to frame seal.

The chrome-plated die cast latch handle is designed for heavy duty service. It is fully adjustable, positive in closing, and operates with a light touch; it does not extend through to the refrigerated area.

Also available is a compact spring actuated combination door closer and stop that is available as an extra accessory. While the closer is designed primarily for use with Display-All doors, it can be applied to most refrigerator service doors.

An illustrated folder giving full information is available.

York-Heat Line Designed as Complete Unit

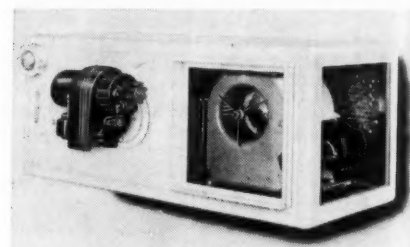
KEY NO. A-1221

YORK, Pa.—Three models of suspended type oil-fired winter air conditioners in three sizes are now in the York-Heat line of automatic heating equipment.

The units use the York-Heat Iris Shutter type burner but have been designed as complete units for greater economy and efficiency, C. H. Neiman, Jr., vice president in charge of engineering, has announced.

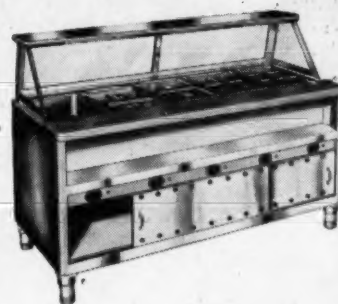
Output at bonnet of the three sizes are 115,000, 150,000, and 205,000 B.t.u. per hour. Each model is finished in white.

York-Heat's suspended units can be used in garages, service stations,



attics, crawl spaces, stoves, or wherever space is at a premium. All models have been approved by Good Housekeeping Institute. Jacket sizes range from 26 in. sq. by 61 in. long for the smallest model to 33 in. sq. by 88 in. long for the longest.

Food Service Tables Offer Dry or Moist Storage



KEY NO. A-1222

ST. LOUIS—A line of electric hot tables that offer either dry or moist heat for hot food storage in restaurants and institutions is being introduced by the Southern Equipment Co. here.

Manufactured with from two to seven 12 by 20-in. top openings, the "Seco-Matic" tables provide regulated, circulating heat for each top opening. They are made with open, semi-enclosed, or enclosed bases, the last equipped with sliding doors.

The top of the unit is made of one-piece, die-stamped, heavy-gauge, polished stainless steel. The heating receptacles are constructed of anodized aluminum and base is made of either heavy gauge galvanized iron or stainless steel. Base features all welded, streamlined construction with all vertical counter rounded.

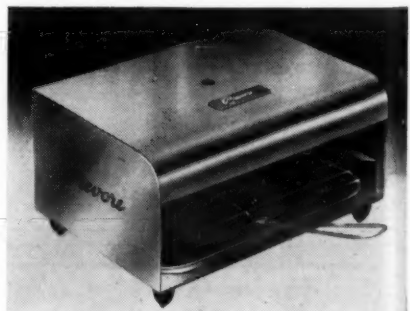
Legs are 6 in. high and are adjustable. A carving board is built into the table top. It is 8 in. wide by 1 1/2 in. thick of hard sectional maple. It can be removed for cleaning.

Three-heat switch controls are furnished as standard. A thermostatic switch and red "on-off" indicator can be obtained at extra cost. Purchaser can specify a.c. or d.c. and the

voltage. The standard voltage furnished is 110 or 220 a.c. single phase.

All Seco-Matic tables measure 34 in. high and 32 in. deep. Widths range from 2 ft. 6 in. for the two opening model to 8 ft. 4 in. for the seven opening unit.

Prevore Infrared Broiler Features Long, Low Design



KEY NO. A-1223

BROOKLYN—A new Prevore infrared miracle broiler featuring long and low design has been introduced by the Prevore Electric Mfg. Co. here.

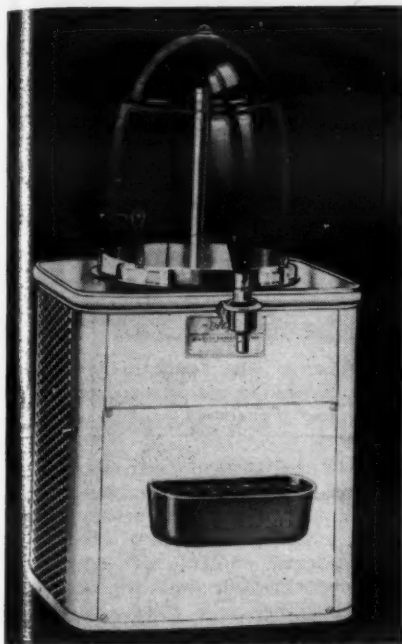
The broiler is 10 1/2 in. long and 6 1/2 in. high. Faster broiling is claimed due to a smaller open front which tends to concentrate the heat rays inside. The plated broiler rack with a folding wire handle can be set at two broiling positions, one for fast searing of meat and the other for medium or thorough cooking.

The broiler operates on two heats with the higher rated at only 1,000 watts. The two-heat cord plugs into either a.c. or d.c., 110-120 volts.

The broiler is constructed of chrome plated steel with porcelain-glazed heating unit. Infrared coils are inserted right into the brick.

A two-year guarantee against electrical or functional defects, except for the cord and plug set, is provided with the unit. List price is \$10.99.

What's New (Cont.)



Removable Bowl Feature of Majestic Juice Dispenser

KEY NO. A-1224

LOS ANGELES—Majestic Enterprises, Ltd. announces a new Model 275-R juice dispenser with a streamlined Lucite removable bowl which replaces the old model 275.

The capacity of the bowl has been increased to hold 3 gals. plus of juice. This Lucite bowl, which has 100% visibility, is quickly and easily removed by hand, permitting the operator to clean it thoroughly in a few minutes. Agitation is achieved by means of a revolving paddle.

This dispenser is designed and engineered for the purpose of dispensing frozen or fresh juices where constant agitation is required for a smooth and satisfying drink.

The dispenser is equipped with self-contained, heavy duty compressor motor vacuum sealed and is thermostatically controlled to maintain an even temperature of 40° F., or lower. The cabinet is a hammertone grey color and requires only 13 in. by 14 in. counter space. The over-all height is 30½ in.

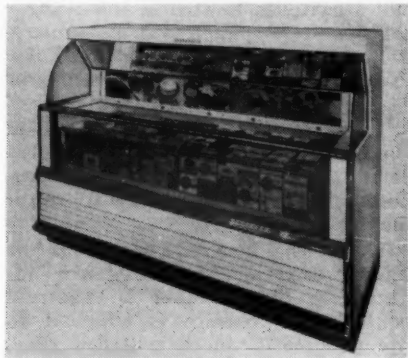
Sealed Unit Parts Has New Connecting Rod Line

KEY NO. A-1225

NEW YORK CITY—Sealed Unit Parts Co., Inc. announces a new line of connecting rods for sealed units.

Sidney Weiner, secretary of the firm, said availability of replacement connecting rods to the independent rebuilder "contributes a major step towards eliminating units that are considered beyond repair."

The rods will be made for replacement in units such as Tecumseh, Chieftain, Kelvinator, Stewart Warner, Mills, and Murphy. This will include both domestic and commercial models.



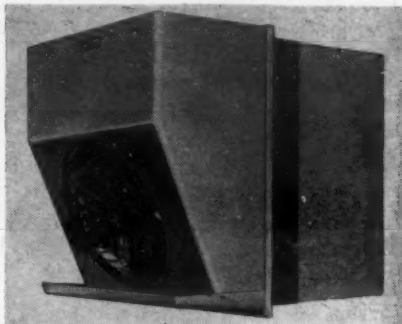
New Hussmann Case Holds 785 Frozen Food Packs

KEY NO. A-1226

ST. LOUIS—A newly designed frozen food case has been introduced by Hussmann Refrigeration, Inc.

Known as Model OLT-7FA, the case is self-contained with Hussmann forced air refrigeration system, equipped with automatic defrost and offers complete flexibility.

Available in 7-ft. lengths with a usable capacity of 17.4 cu. ft., this case will hold approximately 785 frozen food packages in average assortment of current standard brands. Wire dividers in display compartment are adjustable to allow packages to be separated as required.



Packaged Unit for Walk-Ins Developed by Kool-Rite

KEY NO. A-1227

ROBERTS, Wis.—Development of a new, easily installed package refrigeration unit for walk-in coolers has been announced by the Kool-Rite Co. here.

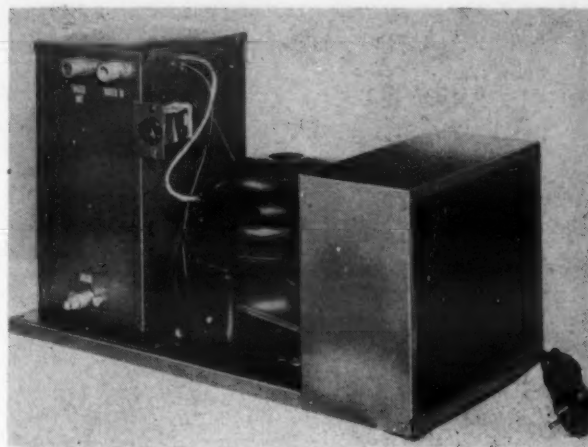
The units are designed for use with all types of perishables, including meats, dairy products, produce, beverages, floral merchandise, and poultry.

Each unit—an entirely self-contained refrigeration plant—can be installed and operating in a very short period of time.

When installation is complete, immediate refrigeration is obtained by plugging in to a standard electrical outlet. There are no valves to open or close to place unit in operation.

A special "super-cooling" design principle utilizes the condensate from the evaporator coil to cool the condenser. Dehydration of stored goods is eliminated by directional air flow control. Five sizes, ¼, ½, ¾, 1, and 1-hp. units, insure a model to fit any size cooler.

Water inlet, water outlet, and power source are all that is necessary to install this remote drinking water cooler designed by Temprite Products Co. Models are available in 3, 5, and 10-gal. capacities.



Temprite Remote-Type Water Cooler Stresses Economy

KEY NO. A-1228

BIRMINGHAM, Mich.—A remote-type drinking water cooler, designed to emphasize economy and versatility in installation, has been introduced by Temprite Products Corp. here.

Cooler and storage tank, compressor and condenser are mounted together on a sturdy metal base, and the unit may be installed in virtually any location where cool water is needed.

It is only necessary to connect the water inlet pipe to the cooler, water outlet pipe to the separate fountain, and plug in the power cord.

Models are currently available in 3, 5, and 10-gal. capacities, and small space requirements make them ideal for a wide range of applications, according to the company.

"For example, many centralized drinking water systems found in office buildings and factories have

deteriorated to the point where replacement is imperative," Temprite noted. "By installing remote-type units, major and expensive overhauling of the plumbing system can be eliminated. Each cooler can economically supply cool water to one or more of the existing wall fountains or bubblers."

Cold drinking water for glass and pitcher filling stations in restaurants, bars, private clubs, cafes, etc., can be supplied with this unit, which can be located in any convenient out-of-sight location.

Private homeowners and motel and apartment house tenants, who suffer the inconvenience of warm local drinking water, can enjoy perfectly cooled water through their present drinking water taps, it was pointed out. Remote-type coolers also find many liquid cooling applications in light-duty, commercial, and industrial work, Temprite added.

Information Center

For more information on What's New products, current literature and catalogs available, equipment advertised in AIR CONDITIONING & REFRIGERATION NEWS use Key Numbers where designated or specify products advertised and we'll see that you receive this information promptly.

What's New or Current Literature Available

Key No.	Key No.
Key No.	Key No.
Key No.	Key No.
Key No.	Key No.

Products Advertised
(list name, page, and issue date)

.....

.....

.....

.....

.....

(PLEASE PRINT PLAINLY)

Name Title

Company

Street

City Zone State

Type of Business

MAIL THIS FORM TO

AIR CONDITIONING & REFRIGERATION NEWS
Reader Service Dept.,
450 W. FORT ST.
DETROIT 26, MICHIGAN

Now! From Kelvinator...



THIS BROAD COVERAGE PROVES KELVINATOR'S CONFIDENCE IN PRODUCT QUALITY

You can see that Kelvinator's 5-year Warranty is a powerful feature... giving coverage that condensing unit buyers have always wanted! The cost? Only—

\$5.00 (for nominal ½ h.p. and smaller)
\$7.00 (for nominal ½ h.p.)

For additional Warranty Information—phone, write or call on your local Kelvinator Distributor or Zone.

New 5-YEAR WARRANTY!

On Commercial Sealed Units Purchased Through Kelvinator Distributors and Zones!

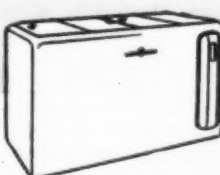
SURPASSED BY NONE IN THE INDUSTRY!

- ★ 5-Year Warranty on ENTIRE UNIT —INCLUDING FAN MOTOR! (excepting relay and capacitor)
- ★ Easy to administer—factory does all record-keeping! (dealer simply sends in card at time of installation)
- ★ Maximum flexibility! Warranty can be purchased WITH the unit—or later—when the unit is installed!
- ★ Replacement unit can be obtained from any Kelvinator Distributor Zone—it does not have to be obtained from original point of purchase!
- ★ Coverage for FIVE FULL YEARS... at low cost!
- ★ All freight on the REPLACEMENT unit as well as on the INOPERATIVE unit is PAID BY KELVINATOR!
- ★ 5-year warranty is optional... units purchased without, carry one-year warranty.

PROFIT TODAY...BUILD FOR TOMORROW WITH

Kelvinator

THE NAME THAT SELLS...THE NAME THAT SATISFIES!



KELVINATOR BEVERAGE COOLERS



KELVINATOR FROZEN FOOD MERCHANDISERS



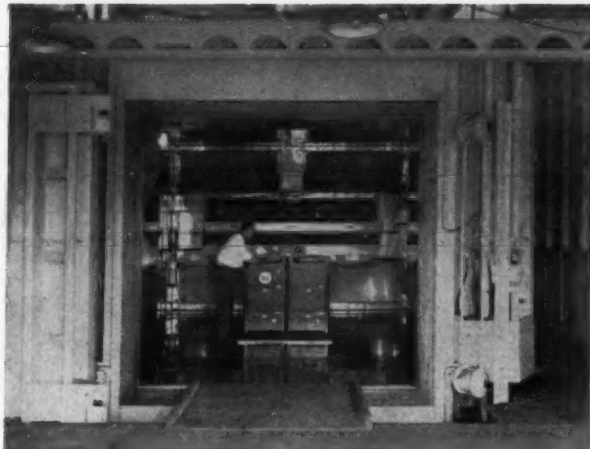
KELVINATOR WATER COOLERS



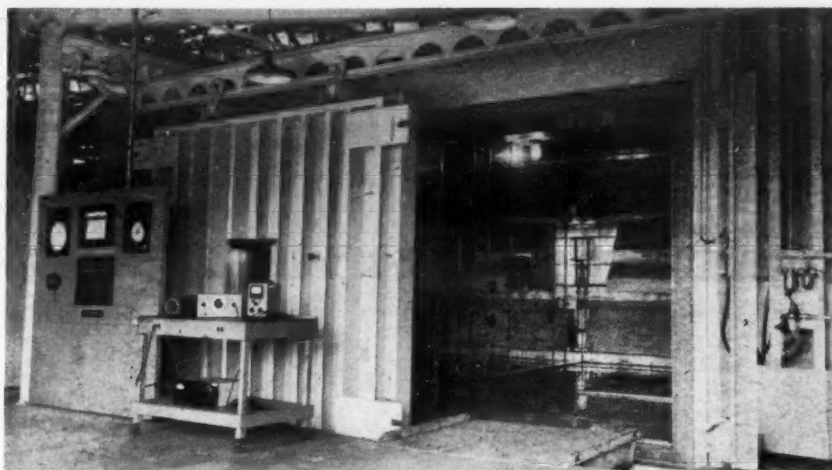
KELVINATOR ICE CREAM CABINETS



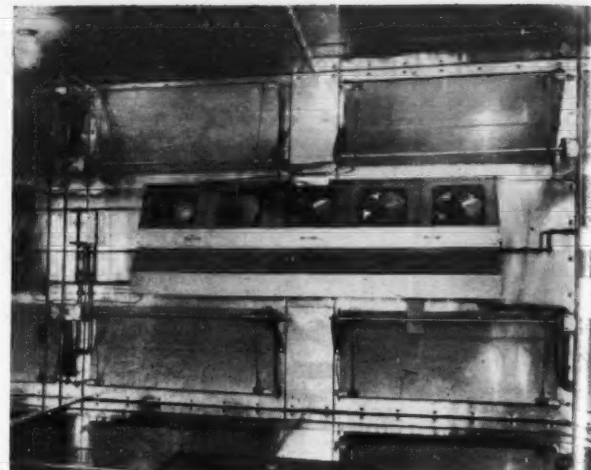
KELVINATOR AIR DRIERS



CLIMATIC CONDITIONS in any part of the world can be produced in this chamber used by RCA to test electronic equipment, chiefly for military use.



HEAVY CONSTRUCTION protects chamber against collapse when operating under extreme vacuum to simulate high altitude conditions. Sliding door moves out and then aside, is locked in place by four compressed air pistons.



DAMPER and fan arrangements in test chamber designed and built for RCA by Tenney Engineering aid in close control of humidity and temperature.

RCA's Stratosphere Test Chamber

50-Ton Room, Which Was Shipped In 3 Sections, Checks Civilian, Military Production In Temperatures Ranging from -85° F. to 185° F.

By C. Dale Mericle

CAMDEN, N. J.—Unusual engineering and structural design features have been employed to make possible a large stratosphere test chamber which can duplicate all types of weather primarily for testing radar equipment.

Designed and built by Tenney Engineering of Newark, the chamber has been installed in the testing laboratory of RCA Engineering Products Department here where every electronic device made by RCA for military or civilian use can be proven over a complete range of temperatures (-85° F. to 185° F.), humidity levels, and altitude.

The chamber is 14 ft. square and 10 ft. high and weighs 50 tons. It was built in three sections and then trucked from the Tenney plant to RCA for assembly at the laboratory.

Four Compressors

Supply Refrigeration

Refrigeration is provided by four Frick compressors hooked up in a three-stage system. The primary stage uses two compressors, each driven by 50-hp. motors. The second and third stages each use a compressor

driven by a 40-hp. motor. (Because the system operates over such a wide range of temperatures, the conventional tonnage ratings do not give a true picture of the size of the equipment.)

Capacity of the equipment, however, is indicated by the fact that the large test room can be pulled down from ambient temperature to -85° C. in four hours, according to E. D. Leigh, who heads RCA's Type Test laboratory.

Additional equipment includes a Beech-Russ vacuum pump driven by a 50-hp. motor which can pull a vacuum as low as 1-in. Hg., which is roughly equivalent to an altitude of 70,000 ft.

Due to this low vacuum, the chamber had to have considerable structural strength to resist thousands of tons of force due to atmospheric air pressure. Thus, heavy channel-iron construction using channels of 12 and 18 in. was employed to protect the chamber from possible collapse under vacuum.

Interior and exterior walls are covered with Armormply stainless steel designed to serve as a moistureproof liner. Because of the wide tempera-

ture fluctuations to which the chamber is exposed combined with the mass of the liner, the latter experiences considerable expansion and contraction.

To allow for this movement while still maintaining a vapor seal, the interior liner panels are set in mastic. The joints are covered by Minnesota Mining's lead tape which is in turn covered by stainless steel strips to protect the tape from accidental damage. Between the inner and outer walls of the chamber are 9 in. of insulation.

Two-Ton Door Can Be Opened by One Man

Design and operation of the large and heavy (about 2 tons) door for the chamber is unusual. This is a sliding door which is so nicely balanced that one man can move it despite its weight. Its suspension arrangement is similar in principle to that of an overhead crane with a traveling gantry. The door moves out from the face of the chamber approximately 2 ft. and then moves to one side.

A special rubber door seal was devised for the installation, which also has an unusual method of locking the door firmly in place to insure a good seal. After the door has been moved into place, four swinging rams operated by compressed air are brought into position, one at each corner of the door. Air pressure on the pistons in the air cylinders holds the door firmly against the entrance.

No airlock chamber is provided since RCA does not plan to have people inside the chamber during tests. An airlock is usually provided when such a chamber is used to simulate high altitude conditions for personnel.

Vestibule Traps Moisture From Door Opening

There is a 3-ft. deep vestibule in the RCA chamber, however, and on the inside of this hangs a heavy curtain which is drawn across the opening when tests are being run, especially at temperatures below the ambient dewpoint. This is to prevent fogging of the test instruments when the chamber door is opened. Moisture from the air outside the chamber would virtually all condense on the cold stainless steel walls of the vestibule.

Floor of the chamber is likewise of stainless steel, and for protection it is covered by a duckboard floor constructed of cypress using copper nails. The latter were employed to prevent rusting.

A Brown two-pen indicating pneumatic controller is furnished on the control panel; one pen to control the dry-bulb temperature and the other the wet-bulb temperature within the test space. The temperatures are set by means of the cam-actuated indices.

Recording Instruments

The Brown electronic strip chart potentiometer is used for recording temperatures within the chamber by means of copper constantan thermocouples. This is a two-point recorder of the printing type that prints the two temperatures consecutively at regular intervals.

The Brown pneumatic wet and

dry-bulb controller operates to supply a metered controlled air supply to a series of electrical pneumatic micro switches located in the electrical control panel. These micro switches energize the control circuits to actuate their individual elements of the conditioning apparatus.

There is a separate metered air supply for the dry-bulb or "sensible" conditioning apparatus, and the wet-bulb of the humidity control equipment.

When the desired conditions of temperature and humidity are obtained in the chamber a "neutral" control air pressure is supplied to the pneumatic micro switches (say, for example, 7½ p.s.i.). When the temperature is too high the control air pressure drops below 7½ p.s.i. to actuate the pneumatic micro switch closing the electric circuit to the refrigeration compressor motor starters.

Conversely, when the temperature is below the required setting the control air pressure will rise above 7½ p.s.i. to actuate pneumatic micro switches which will energize electric air heaters in capacity steps, as required.

Similarly, the wet-bulb metered air supply operates micro switches controlling humidity and dehumidifying systems.

Neutral Control Air Pressure Adjusts Manually

The neutral control air pressure is adjusted as desired or required by the manual reset adjustment which is built into the Brown controller.

Also, in the Brown controller is the percentage proportioning control adjustment for both the wet and dry-bulbs, whereby the rate of change of the metered control air supply to the micro switch may be varied if

(Concluded on next page)

Going Places in the Refrigeration Field

DEAN
"Job Tailored"
COLD PLATES

Save time... save money!
Any size, any shape, most metals! More and more the choice of cost-conscious refrigeration engineers. Get the full details today!

WRITE FOR TECHNICAL DATA BOOK

DEAN STerling 9-5400
PRODUCTS, INC.
1042 DEAN ST. • BROOKLYN 16, N. Y.



V-510 Self-Service Case with Sliding Mirrors



V-10 Extra Wide Self-Service Case

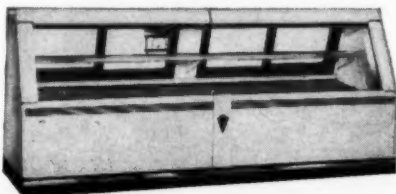


CC-120 CrispyCold Enclosed Vegetable Case



V-9 Dairy Case

V-6 Double Duty Meat Case



Meet Customer Needs—
and Profit...
with the
Complete VIKING Line
of Quality
Refrigeration Equipment

Here's why customers buy... and you sell... more Viking Equipment... with more ease and satisfaction:

- (1) Sizes and styles to meet all requirements for packaged meats, fruits and vegetables, frozen foods and dairy products.
- (2) Longer-life construction... trouble-free performance... no servicing headaches.
- (3) Easy installation.
- (4) Modern, attractive design for sales-building display.
- (5) Bigger display areas.
- (6) Economical operation... Norsair* cooling or gravity coils.
- (7) Every product rigidly tested for quality and performance.

Yes, Viking Equipment sells... and stays sold!

Viking Franchises Available
in a Few Select Territories
WRITE TODAY
for Complete Information

*U.S. Pat. No. 2,466,280

VIKING REFRIGERATORS, INC.
7500 Wilson Ave., Kansas City 3, Mo.



Many other models and designs, not illustrated, also available.

YOUR BEST INSURANCE AGAINST EXPLOSION DANGER!

FINE "SEAMLESS" CYLINDERS

give maximum safety for only 3 cents a year! Cheapest insurance you can buy against explosion danger from cylinder overfilling! Their extra capacity... 4.8 lbs. compared to 4.0 ICC requirements... decreases high pressure due to hydrostatic expansion. Heavier metal walls, thicker at ends. No welded seams. Fusible safety provided as standard equipment. Spring loaded safety, slightly extra.

... Ask your Wholesaler about Fine's new 5 lb. cylinder No. 5E, stands erect!

Fine PRODUCTS CO. 4837 S. WESTERN BLVD.
CHICAGO 9, ILLINOIS



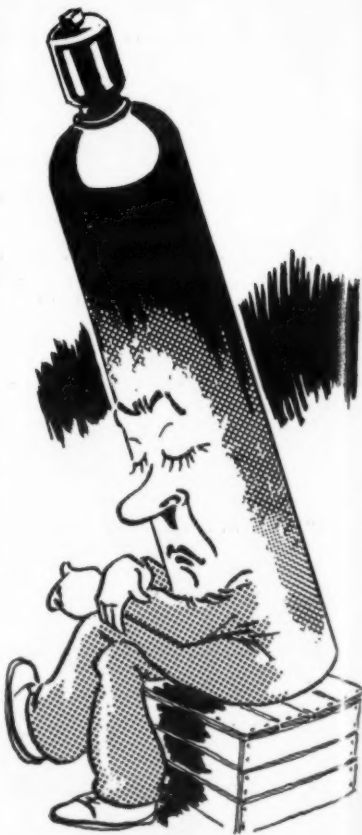
**WANTED
FOR DESERTION
REWARD
FOR RETURN**

How many empty ANSUL Sulfur Dioxide and Methyl Chloride refrigerant cylinders are just sitting around in your warehouse when they should be working for you?

Cylinders are needed to ship refrigerants and we need cylinders more than we need your dollars in cylinder deposits.

Please check NOW and return empty cylinders today. Your cooperation can mean you'll get the refrigerants you need... when you need them. (Return "FREON" cylinders via reverse routing. Return ANSUL cylinders to Marinette, Wisconsin.)

ANSUL CHEMICAL CO.
REFRIGERATION DIVISION
MARINETTE • WISCONSIN



Test Room's 3-Stage Refrigeration System Features Automatic Oil Level Control

(Concluded from preceding page)
desired for closer "straightline" control.

The temperature sensing element consists of thermometer bulbs and thermocouples. These elements are located in the air stream, the wet-bulb elements being provided with wicks.

The control setting is resolved into two components; the sensible or dry-bulb temperature, and the humidity control as indicated by the wet-bulb temperature.

Ambient temperature pertains to equilibrium temperature in the chamber when the conditioning apparatus is not operative. Ambient temperatures may be higher than the outside room temperature when there is a heat dissipating object under test in the chamber.

Sensible, or dry-bulb temperatures, higher than ambient are achieved by circulating air over electric air heaters which are controlled by the dry-bulb recorder controller through heat switches on the control panel.

Heating Capacity

Automatically Modulated

All heat switches may be closed to effect a quick change but only a portion of the heat capacity may be required to maintain any temperature setting after the control point is reached. This heating capacity is automatically modulated at control point.

Temperatures below ambient, where control of humidity is required, are achieved by circulating air over the main finned coil which acts as an evaporator for a single-stage refrigeration system. The cooling effect is controlled through operation of the compressor and adjusting the dampers toward the closed position as far as possible to give the closest control of both wet and dry-bulb temperatures.

Extreme low temperatures are achieved by operation of the finned coil serving as an evaporator for a multi-stage refrigeration system, and

with necessary dampers in the fully open position.

Low relative humidities are obtained through operation of the finned coil as the evaporator of a single-stage refrigerating system with the coil indirectly exposed to the conditioned space. By virtue of the presence of the resulting low temperature with its corresponding low dew-point, a low vapor pressure area is created. Vapors from the conditioned space will automatically migrate to the low vapor pressure area.

Relative humidities above equilibrium or ambient humidities are created by introducing pre-heated atomized water spray into the circulating air stream. Pre-heating is adapted to supply to the water the latent heat of vaporization so that it is most efficiently dispersed into the air without an accompanying cooling effect on the sensible air temperature.

Steam humidification is available under control of wet-bulb from plant steam supply to affect quick humidity control point changes.

The vacuum system includes a 50-hp. Beech Russ vacuum pump used for evacuating the test chamber, a Brown pressure recorder to indicate the absolute pressure in the chamber in inches of mercury, and two Merco vacuum switches, one of which is used to control the degree of vacuum maintained within the chamber, and the other used only as a safety switch to open the circuit to the air heaters and thus prevent heater operation during a high altitude test run.

The operation of the refrigeration system for sub-zero cooling is three-stage "Freon-22" compound system. It is single stage whenever operating for control of ambient cooling for humidity control.

Three-Stage Refrigerant Circuit Detailed

The following is the three-stage refrigerant circuit:

Liquid "Freon-22" leaves the receiver and flows through hand valves, sight-glass, etc., to the sub-cooler, after which it separates and flows through the necessary control solenoid valves and expansion valves to the finned coil in the chamber. Some of the liquid "F-22" is diverted ahead of the subcooler and used as follows:

A portion of the liquid "F-22" flows through a temperature pilot valve and into the subcooler where it reduces the temperature of the main flow of liquid refrigerant. The surplus refrigerating liquid and suction gas from the subcooler returns to the first interstage line where it serves to reduce the superheat of the compressed interstage gas, thereby reducing the temperature of the suction gas to the intermediate stage compressor.

Still another portion of liquid from receiver flows through a temperature pilot valve to cool the valve

plates of the low and intermediate stage compressors and then through a suction pressure regulator into the second interstage line to partially reduce the temperature of the high-stage suction gas.

The last part of the diverted liquid is fed through a temperature pilot valve into the second interstage line to further cool the high-stage suction gas.

By cooling the gas in the first and second interstage lines, the discharge temperature from the intermediate and high-stage compressors is reduced, thereby insuring long trouble-free operation of all machines in the system.

Suction gas from the finned direct expansion coil in the chamber will return to the suction of the low-stage compressor.

One feature of the three-stage refrigeration system is the automatic oil level control system which maintains the proper oil level in each of the refrigerating machines.

Oil separated from the system in the oil separator is returned to the high-stage machine. Surplus oil in the high-stage machine migrates to the interstage machine through the Tenney oil level control valve. Similarly, surplus oil from the interstage system moves through an oil level control valve to replace the oil placed in circulation by the low-stage machines.

Air Circulation System

The air circulation system within the chamber consists of four axial flow cooling blowers located in the bottom of the refrigeration coil space and five heater fans located in the heater compartment in front of the refrigeration coil section.

The cooling blowers circulate air through the cooling coil, and this airflow is regulated by the dampers as described below. The heater fans circulate air over the heaters and humidity spray tank.

The chamber is provided with two suction dampers and two discharge dampers enclosing the refrigeration coil space. The damper operators are located on the outside walls of the chamber, thus permitting external operation of the dampers during tests when chamber door is closed.

The lower dampers are in the return air stream to the cooling coil, and the upper dampers are in the discharge air stream from the cooling coil.

The upper dampers are fully open for cold tests with one or both lower dampers open as required by particular set of axial blowers which are to be used.

M-H Names Industrial Mgrs. for 3 Districts

MINNEAPOLIS—New industrial managers have been named for the Denver, Tulsa, and Kansas City branch offices of Minneapolis-Honeywell Regulator Co., it was announced by W. H. Steinkamp, field sales manager for Honeywell's Brown Instruments division.

W. J. Blackburn has been made industrial manager of the Denver office, succeeding Donald W. Larcen, who was recalled to military service.

Donald D. Baker has been made industrial manager of the Kansas City office, succeeding Blackburn. Baker, formerly at Wichita, has been replaced there by Bernard J. Alberts.

Jack F. Smith has been appointed industrial manager at Tulsa, from which city he will coordinate the company's industrial sales activities in the Tulsa, Oklahoma City, and Amarillo areas under the direction of Reginald Walker, branch manager. Pilgrim McRaven will handle industrial interests in Oklahoma City.

Defense Orders Help Trane Corp. Sales To Rise 41% for 9 Months

LA CROSSE, Wis.—Defense orders helped push consolidated net sales of The Trane Co. and its Canadian subsidiary to \$26,693,047 for the nine months ended Sept. 30.

This figure represents a 41% increase over the \$18,978,795 in sales for the same period of 1950, D. C. Minard, president, reported.

Consolidated net income, calculated on the basis of revenue and excess profits tax laws in effect Sept. 30, was \$1,544,057, compared with \$1,029,191 for the first nine months of 1950. This equals \$5.15 per share, compared with \$3.43 for the first nine months of 1950.

Minard emphasized that the recently enacted Revenue Act of 1951 would create an additional tax liability, reducing net income approximately 47 cents per common share. Earnings figures are based on 300,000 common shares outstanding. They do not take into account the recently announced stock dividend effecting a two-for-one stock split.

Sales for the first three quarters were affected materially by defense business—both in Trane's basic heating, ventilating, and air conditioning lines and in special heat exchanger lines.

Shipments of industrial steam and hot water unit heaters during the first nine months exceeded total annual sales for either 1942 (record wartime year) or 1947 (record peacetime year), Minard revealed.

The increased heat exchanger volume includes a substantial number of large Diesel engine jacket water and lubricating oil coolers, being shipped to new Gulf Coast reduction plants of Aluminum Co. of America and Kaiser Aluminum & Chemical Co.

Trane also shipped a record volume of lightweight brazed aluminum aircraft intercoolers and heat exchangers for cooling the pressurized cockpits of jet fighters. Orders were also received for large brazed aluminum heat exchangers.

NEW PRODUCTS?

Turn to "What's New" Page for useful information on new products. Use Key No. for fastest service.

Sept. Ice Cream Output Reported 4% over 1950

WASHINGTON, D. C.—Production of ice cream in the United States during September rose 4% compared with the same month of last year but declined 14% compared with the five-year (1945-49) average for the month, according to the Bureau of Agricultural Economics.

September output was estimated at 48,705,000 gals.

Production in the first three quarters reached 448,545,000 gals. This was 3% more than the corresponding period of 1950 but 6% less than the five-year average.

Butterfat content of ice cream made in September averaged the same as in August this year and September, 1950—12.1%, according to the report.

LOOK to LARKIN

for Good Looks



LARKIN HUMI-TEMP UNIT

For clean, smart lines, satin-smooth finish, color and overall good looks—Larkin leads. Behind this beauty is the quality and performance that keeps Larkin ahead.

Manufacturers of the original Cross-Fin Coil — Humi-Temp Units — Evaporative and Air Cooled Condensers — Air Conditioning Units and Coils — Direct Expansion Water Coolers — Steel Vacuum Plate Coils — Heat Exchangers.

WATCHDOG OF THE NATION'S FOOD SUPPLY

LARKIN COILS

110 MEMORIAL DR. S.E. • ATLANTA, GA.

WANTED ENGINEER—DATA SPECIALIST AIR CONDITIONING AND REFRIGERATION

One of the largest internationally known manufacturers requires an Application Engineer, Specialist in Data Preparation for both Price Book and Sales Bulletins.

Position permanent. Must have special ability, initiative and experience. When applying list complete qualifications.

Box 3874, Air Conditioning & Refrigeration News

LET THE MAILMAN DELIVER A COPY TO YOU

New Edition No. 155

HARRY ALTER'S DEPENDABOOK

for Fall and Winter—1951-2

Over 9,000 Refrigeration **PARTS and Supplies**

Illustrated

Everything that's available and everything at rock-bottom prices. The DEPENDABOOK is a big help in ordering, and will save you money, too... Write for your copy—on your letterhead—NOW!

"Service doesn't falter when it comes from Harry Alter"

1728 S. Michigan Ave. Chicago 16, Ill. **The HARRY ALTER CO. Inc.** 134 Lafayette St. New York 13, N.Y.

There's always one that's better... and in controls it's **RANCO!**



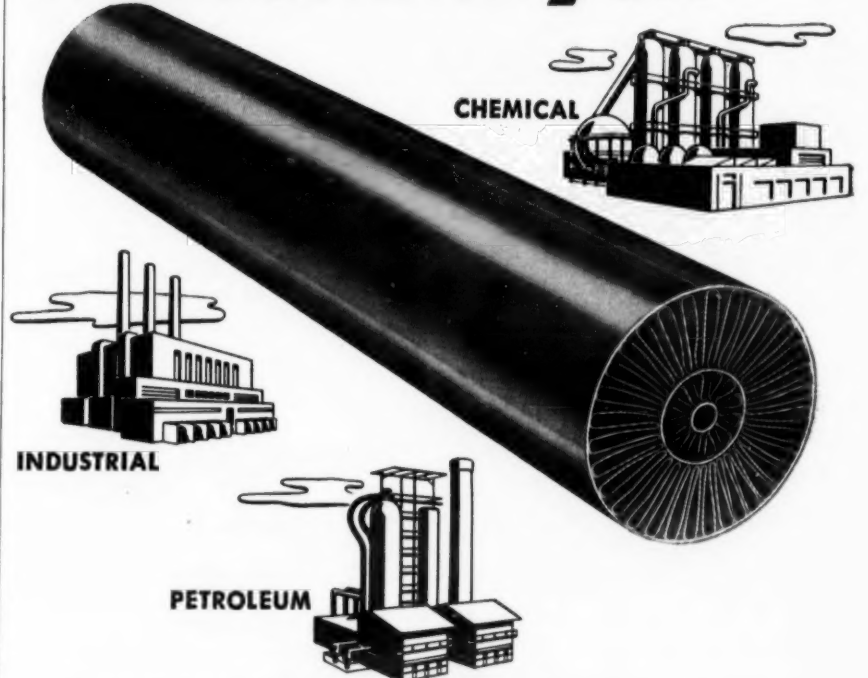
Refrigeration men have made Ranco the world's leading refrigeration control. For every one of the millions of Ranco controls now in use was specified and ordered by refrigeration experts—designers and servicemen. What better proof could there be that Ranco is your best bet for replacement controls? Genuine Ranco controls are available for more than 4,000 replacement installations.

Ranco Inc.
COLUMBUS 1, OHIO



WORLD'S LARGEST MANUFACTURERS OF REFRIGERATION CONTROLS

Versatility...



HEAT-X LONGITUDINAL FINNED TUBING has been discovered by engineers and designers in many fields to be a more efficient type of surface for the heat transfer of most liquids and gases. Constructed with a large amount of surface compressed into the smallest possible volume, Heat-X Longitudinal Finned Tubing provides for maximum space saving, minimum pressure drop. Available in sizes from 5/8" O.D. to 2 1/8" O.D. and lengths up to 10 feet.

Write today for complete specifications

THE HEAT-X-CHANGER CO., INC.
BREWSTER, NEW YORK



Refrigeration Problems and their Solution

by Paul Reed

For Service and Installation Engineers



Paul Reed

Free Service Reserve

Manufacturers have elaborate cost accounting systems. They can determine at any time what their profit and loss picture is without waiting until the end of the year. They know how much each part of each model costs, and whether that cost is more or less this month than last month. Every variation in cost of material, in wage scale, or in production efficiency shows up in the cost analysis of each tiny part.

"But," we hear, "it is different in the field. There we have variables. It is impossible to accurately predict just how much each individual in-

stallation is going to cost. We run into unexpected troubles. Some of these unexpected troubles are sometimes so big that they wipe out the entire profit on an installation, and more besides; so we lose money on that job. The manufacturer doesn't have that problem; he gets the same amount of money for his product, regardless of how much trouble we have and whether we make or lose money."

The manufacturer has his troubles, too, especially in these days of shortages and substitutions, porous castings, off-grade steel, inferior quality discharge and suction valve leaks, etc. Or perhaps it's a human weakness, someone in production or inspection "slips."

Whatever the cause, if he puts out a bad batch of equipment, complaints from his dealers multiply, returns of defective machines pile up in his receiving department, his replacement costs soar. Does he have to dig down into his profits for the money to pay these extraordinary costs? Not he; he is prepared for such possibilities. The replacement costs come out of his Warranty Reserve.

Out of the selling price of each unit, he sets aside a small amount that goes into the Warranty Reserve. How much he takes out of each sale for the Warranty Reserve depends upon the type of product, upon his past experience, and upon his judgment of the future expected performance and quality of his product.

The amount put into the Warranty Reserve may be as low as a fraction of one per cent of the selling price, or for some types of product and under particularly adverse conditions, it might amount to several per cent.

Out of this reserve is paid the cost of all free replacements under the terms of his warranty, and only for the length of time that the warranty covers free replacements. In the refrigeration industry, the warranty period is customarily one year.

This separate fund is not used for

anything else. Suppose, for example, a unit comes back for free replacement as defective, but his examination shows that it was abused, operated without proper oiling, for instance. Ordinarily, the dealer would be charged for the replacement.

However, there might be certain extenuating circumstances. Perhaps that dealer had just been through a lot of defective machines that had been expensive to him, and was still sore about it. So it might be good policy to replace the unit at no charge to the dealer, even though it was the fault of the dealer or the user. The cost of that replacement would not be charged against the Warranty Reserve, but instead, it would be charged against Sales as a matter of good policy, to keep from antagonizing a good dealer.

The Warranty Reserve is the manufacturer's cushion to absorb the sudden shocks of unexpected and temporarily excessive replacement costs. Moreover, it enables the manufacturer to know how much his warranty replacement costs are running. If they consistently run more than the Warranty Reserve, he must take steps to improve his product or his production methods to bring his replacement costs back into line, or to increase the amount allocated to Warranty Reserve, and consequently his over-all cost.

FREE SERVICE RESERVE

The dealer has an almost identical problem. When he sells a piece of equipment, he promises his customer that he will service the equipment without cost to the customer for a certain period of time, called the Free Service Period, which may be 90 days, up to, but rarely more than one year.

During the Free Service Period, defective parts are supplied by the manufacturer without charge under his warranty. The dealer assumes the labor and incidental costs, including transportation, that may be required to actually replace the "free" parts and to make what adjustments may be required to keep the equipment operating properly.

Just as the manufacturer has a Warranty Reserve, the dealer should have a Free Service Reserve. A certain per cent of the selling price of every installation should go into the Free Service Reserve, and all costs of giving the customer free service should be charged against that reserve.

How large the percentage of the selling price that is put into the Free Service Reserve depends upon past experience as to how much costs of free service have been running, and upon the dealer's judgment as to whether future free service may be expected to be higher or lower than in the past.

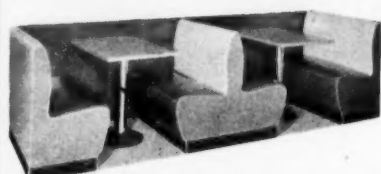
Expected increases in labor rates or in refrigerants and other material, may require an increase in the percentage of the Selling Price that is set aside to go into the Free Service Reserve. On the other hand, the dealer may feel justified in reducing the percentage if he feels that he is apt to have less trouble than in the past.

If a dealer has never set up a Free Service Reserve, he may be at some loss to know just how much to start with. Nevertheless, he should make a start, even though the percentage may prove to be entirely inadequate or far too much.

Within a few months, or at most a year, he will see how near his Free Service Reserve is to covering his free service costs, or if it is much too large. Then he can increase or reduce the percentage accordingly.

Let us say that he starts with 5%. If, before the end of the year, his Free Service Reserve is used up, he knows that his free service is costing him more than 5% of his net sales, and he must either increase the percentage to the reserve or take some steps to reduce his free service costs. At any rate, he has a means of knowing how much free service is costing him, and if he has not been making as much profit as he thinks he should, perhaps excessive free service costs may be partly responsible for his low profit.

CHROME FURNITURE at LOW...LOW PRICES



Booth Illustrated

single \$39.50 list

double \$59.50 list

wall panel \$22.00 list

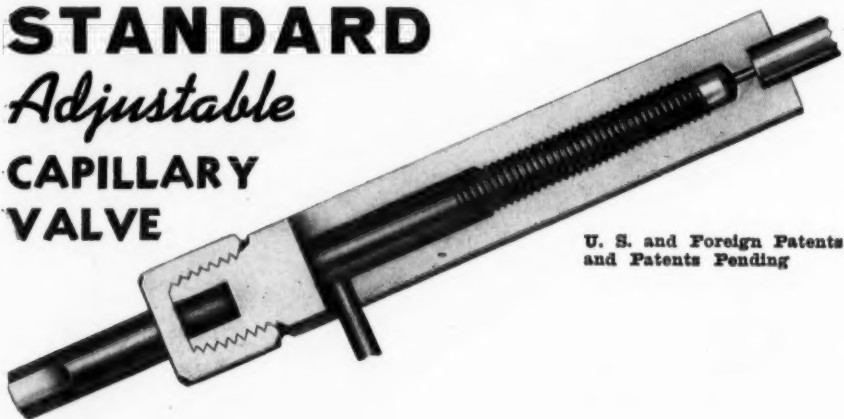
BIANCO manufactures quality chrome furniture at prices that command fast sales action. A complete line from de luxe to economy. Booths . . . settees . . . tables . . . wall panels. Upholstered in rugged Duran for long life.

write for
illustrated catalog



2736 VICTOR STREET
ST. LOUIS, MO.

The HIT of the SHOW STANDARD Adjustable CAPILLARY VALVE



U. S. and Foreign Patents
and Patents Pending

Presented for the first time at the All-Industry Show, the new STANDARD Adjustable Capillary Valve received widest acclaim from all visitors—manufacturers, wholesalers and servicemen. Here at last is a restrictor which replaces high- and low-side floats, capillary tubes, and automatic expansion valves and enables the engineer to set the capillary to the job without cut-and-guess methods.

The STANDARD Adjustable Capillary Valve is easy to install, is readily cleanable, and can be used on any refrigerant for high or low temperatures. Current capacity covered is from 1/20 to 1/3 H.P.

Features

1. Easier to install.
2. Eliminates usual capillary noises.
3. Adjustable.
4. Cleanable.
5. One valve for all refrigerants.
6. One valve for high or low temperatures.
7. Capacity 1/20 to 1/3 H.P.

Order today from your
Wholesaler

STANDARD REFRIGERATION COMPANY
332 S. Hoyne Ave., Chicago 12

He, like the manufacturer, has a cushion to absorb the shock of excessive free service cost on one or two installations. Instead of wrecking his profit picture for the month, temporarily extraordinary free service costs are absorbed by the Free Service Reserve.

On most installations, the amount set aside for free service should be much greater than is necessary. On a few installations, he may lose the charge of refrigerant or some part of the equipment may prove defective, and it may have to be replaced. His free service costs on those few jobs may eat up the amount set aside from 20 installations that give little or no trouble.

If his Free Service Reserve stays "in the black," that is, if it covers the free service costs, he is relieved of the shock of losing all of the profit, and perhaps more, from a nice job because of excessive cost of service on that one job.

So the Free Service Reserve not only takes the sting out of excessive trouble on an occasional job, but it also gives the dealer a true picture of how much he is spending for free service.

Free service costs only should be charged against the Free Service Reserve, not "gifts" or special services to the customer not included in free service. Costs of these "policy" services should be charged to sales, not to service.

A further advantage of the Free Service Reserve is that it simplifies the preparation and filing of your income tax return. Free service is a deductible cost, and should be kept separate from the profit picture. Too often free service costs are confusedly mixed into profit figures.

If you do not have a Service Reserve, it will pay you to set one up and adhere to it strictly.

SSB Provides for Salary Increases To Equal Those Granted Hourly Workers

WASHINGTON, D. C.—In order to reestablish and maintain historical or customary relationships and differentials between salaried employees and those hourly-rated employees who receive cost-of-living increases in wages, the Salary Stabilization Board has ruled that employers may raise salaries by the same percentage as they raise wages to cover cost-of-living increases.

The salary boosts can be made now to cover any cost-of-living wage boosts since last January, but they cannot be made retroactive to the date of the wage boost. In the future, such increases can be made at the same time as the wage increase.

The percentage of increase is an over-all percentage rather than applying to individual cases. Thus an employer who is allowed to make an over-all 2% increase can, if he wishes, give 3% to one employee to restore customary differential. But at the same time, he must allow only 1% to another employee in order to balance out at 2%.

G-E Moves N.Y. Service Center

NEW YORK CITY—General Electric Co.'s appliance service center here has been moved to 326 Broadway, J. D. Phillips, product service manager for the small appliance division, has announced. The service center was formerly located at 2125 44th Ave., Long Island City.

2 NEW COST SAVING BRAZING ALLOYS



**PHOSON
PHOSCO**

FOR LOW TEMPERATURE BRAZING THE
COPPERS & BRONZES
WRITE FOR COST SAVING BULLETIN
UNITED WIRE & SUPPLY CORP.
PROVIDENCE 7, RHODE ISLAND



*The Greatest
VALUE in
FOOD FREEZERS*

THE FAMILY'S
PREFERENCE EVERYWHERE



Revco, INC. • DEERFIELD, MICH.

NEED TRIM? ASSEMBLIES? ROLLED FORMS? STAMPINGS?

It costs no more to Sub-contract
with a Specialist

You'll find it profitable to get your stampings or rolled forms from Greene. Sub-contracting is our business. We've built it by meeting quality standards and delivery dates.

Let us sub-contract your defense or civilian work. Send coupon today. No obligation on quotations.

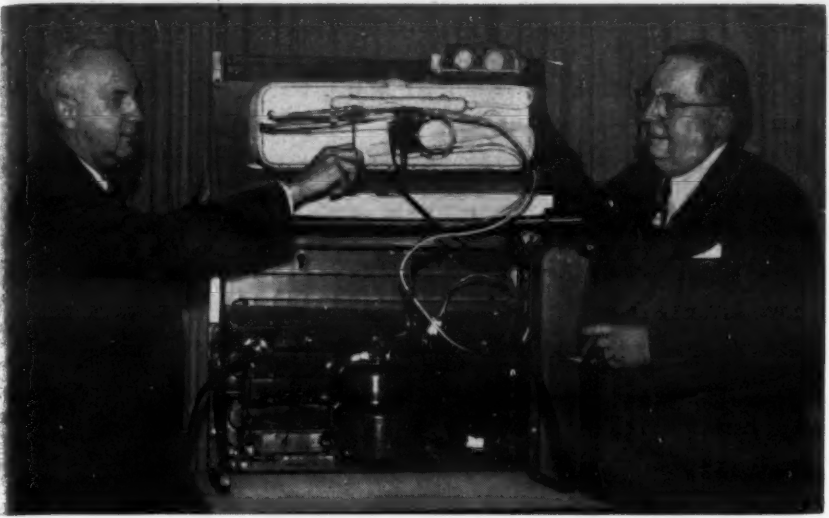
TEAR OUT AND MAIL
☐ HAVE REPRESENTATIVE CALL
☐ SEND ILLUSTRATED BULLETIN

NAME _____
COMPANY _____
ADDRESS _____

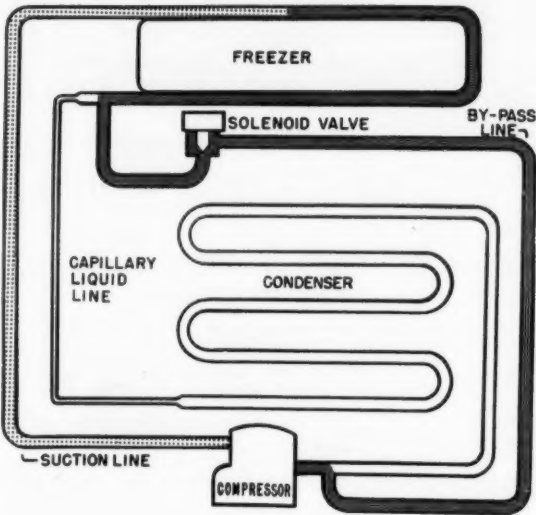
G-11



Greene of Racine
GREENE Manufacturing Company, Inc., Racine, Wis.



Dr. L. A. Philipp, (left) vice president in charge of Kelvinator engineering, demonstrates the new system to Nash-Kelvinator Corp.'s president, George W. Mason. The apparatus is a working refrigerating system, with freezer chest reversed for demonstration purposes, showing the location of the "Magic Cycle" by-pass line and solenoid valve.



This diagram has been highly simplified, to show the salient features of Kelvinator's "Magic Cycle" self-defrosting system. Light shading represents cool refrigerant; dark shading, warm refrigerant vapor.

Kelvinator Defrost--

(Concluded from Page 1, Column 3) nically, since there are no watt-consuming electrical heating devices. Because it works on the frost from the inside out, it gets results so quickly that ice cream and frozen foods stay safely frozen, and food compartment temperatures remain down where they should be for proper food preservation during defrosting.

Dr. Philipp said the modifications in the basic refrigerating system to convert it to automatic defrosting are very simple. They consist of a by-pass line from the discharge side of the compressor to the freezer, a solenoid-operated valve in this line, and an electrically-timed thermostatic switch.

The electric timer is set by means of a dial in the top trim of the cabinet opening. Once the dial is set to correspond with the actual time of day, defrosting takes place automatically every 24 hours at approximately 2 a.m., or any other time the user desires.

When it reaches 2 a.m., the electric timer closes the contacts on the defrost thermostat, thus opening the solenoid valve in the by-pass line. Because this line is of larger diameter than the capillary liquid line, the warm refrigerant from the compressor takes the path of least resistance, by-passes the condenser and capillary liquid line and flows directly to the freezer. The frost begins to melt, and continues to melt until the freezer is entirely cleared of frost.

As it gives up its heat to the freezer, the refrigerant condenses to

a liquid just as it does in the condenser in normal operation. This liquid then flows down the suction line to the compressor, where it picks up heat generated by the normal action of the compressor. In doing so, it turns into gas and is fed to the freezer to continue the defrosting process.

When all the frost has melted, the defrost thermostat closes the solenoid valve in the by-pass line. This stops the flow of warm refrigerant to the freezer, and normal operation of the system is resumed.

"The actual speed of defrosting depends on a number of factors," Dr. Philipp said. "Under one set of test conditions in our laboratories, the Kelvinator system completed its defrosting cycle in only 10.4 minutes."

"In a hot, humid location there will naturally be more frost accumulation than in a cool, dry location. The amount of usage the refrigerator is subjected to also influences the amount of frost to be removed."

"In the Kelvinator system there is a compensating factor. With a higher outside temperature, the refrigerant flowing from the compressor is also at a higher temperature and therefore will melt a given amount of frost in a shorter time. This is not true with electrically heated defrosting systems because the quantity of heat available for defrosting is constant regardless of outside temperature."

"At the same time tests were made with electrical thermometers to see what happened to stored frozen foods during magic cycle defrosting. Frozen food temperatures rose only a few degrees above zero, and remained so low that even such perishables as ice cream kept safely without the slightest trace of melting."

SSB Allows Boosts for Outside Salesmen--

(Concluded from Page 1, Column 4) not covered by the regulation. GSSR 5 allows pay boosts as follows:

Sales employees compensated on a straight salary basis:

"The provisions of other general salary stabilization regulations permitting general increases or individual adjustments in salaries and other compensation shall be applicable to sales employees compensated upon a straight salary basis."

MEN ON STRAIGHT COMMISSION

Sales employees compensated on a straight commission basis:

"(A) Variations in earnings of individual sales employees resulting from the normal operation of a plan or practice in effect on Jan. 25, 1951, for the payment of commissions on sales or business transactions are permissible, providing that such earnings shall not be increased as the result of a change, subsequent to Jan. 25, 1951, in the commission rate or in the method or formula for the computation of the commissions."

"(B) A sales employee who is compensated by commissions only may receive increases in his drawing account or salary against commissions or, if he does not receive such a drawing account or salary against commissions, may be paid a drawing account or salary against commissions not to exceed 77% of his total earnings in the calendar year 1950 or of the average of his total earnings in any three out of the five calendar years 1946 to 1950."

"The drawing account or salary against commissions may be paid on a weekly, monthly, or other basis in accordance with the employer's past practice."

"The drawing account or salary against commissions shall be charged against the total commissions which the sales employee is entitled to receive in the current calendar year and may be paid although during the current calendar year the amount of the drawing account or salary against commissions may exceed his total commissions during that year."

"If the drawing account or salary against commissions thus paid exceeds total commissions in any calendar year, the employer may release the sales employee from liability for the difference at the end of such year."

SALARY PLUS COMMISSION

Sales employees compensated by a fixed salary plus commissions:

"(A) A sales employee who is compensated by a fixed salary plus commissions may receive an increase in his fixed salary to bring the salary to an amount not to exceed 77% of his total earnings (including both salary and commissions) in the calendar year 1950 or of the average of his total earnings in any three out of the five calendar years 1946 to 1950."

"The fixed salary shall continue to be paid on a weekly, monthly, or other basis in accordance with the employer's past practice."

"Any resulting increase in the fixed salary shall be charged against and deducted from the total commissions earned by the sales employee in the current calendar year and may be paid although during the current calendar year the increase in fixed salary may exceed his total commissions during that year."

"If the increase in the fixed salary thus paid exceeds total commissions in any calendar year, the employer may release the sales employee from liability for the difference at the end of such year."

"(B) In lieu of an increase in fixed salary under paragraph (A) of this section or in the event that a sales employee's fixed salary exceeds 77% of his total base period earnings, the employer may adjust the fixed salary of an employee on a salary plus commission basis in accordance

with the provisions of other salary stabilization regulations permitting general increases or individual adjustments in salaries and other compensation."

Regarding sales contests and prizes, the regulation states that "an employer who had an established practice on or before Jan. 25, 1951, in the use of special sales contests or prizes may continue or resume his established practice, but the total amount expended during the current calendar year shall not exceed the total amount expended in the year 1950 or the average expended during any three out of the five calendar years 1946 to 1950."

The ruling with respect to sales expenses is as follows:

"(A) An employer who had an established practice on Jan. 25, 1951, of reimbursing a sales employee for actual expenses incurred by him may continue to reimburse him upon an actual expense basis even though the amount is increased, provided the increase is due exclusively to increase in the cost of the expense items previously reimbursed."

"(B) An employer who had an established practice on Jan. 25, 1951, of paying a fixed expense allowance to defray the actual cost of a specific facility, such as a mileage allowance for the operation of an automobile or an allowance for the cost of hotel accommodations, may increase the fixed allowance by an amount not exceeding an actual increase in cost since Jan. 25, 1951."

Under another section, the office of salary stabilization "is authorized to approve adjustments in compensation or expense allowances of sales employees, to increase a fixed expense allowance or compensation to reflect an actual increase in the cost of the expense items required to be paid."

In a foreword to the regulation, the SSB explained how it arrived at the 77% figure cited in the order. It said:

"Many companies allow salesmen a drawing account measured by their commissions on sales in the previous year, the drawing account often ranging from 60% to 75% of such commissions."

"A 70% figure has been determined by the Salary Stabilization Board as appropriate for companies which did not have such a practice accompanied by appropriate charge-off provisions, and this figure, with the 10% catch-up increase authorized for other employees, results in the 77% figure mentioned in this regulation."

SLANTS on Service

Use of Muffler Reduces Noise from Resonance

Mufflers may be required in hot gas discharge lines in some systems where pulsations from pistons of compressor occur at a frequency that will cause resonance. The noise is objectionable, and the vibrations can be strong enough to pull lines from mountings and break connections.

This condition may become more prevalent with the increasing use of evaporative condensers and resultant longer hot gas lines and larger number of fittings. To minimize possibilities of such resonance, keep the number of fittings in the hot gas line to a minimum and anchor piping securely.

If a muffler must be installed, it should be as close to compressor hot gas discharge service valve as possible. Where oil separators are also employed, the muffler should be between the compressor and the oil separator.

Symptoms of Oil Shortage In Norge Rollator Units

Lack of oil in a Norge Rollator is indicated by long or continuous running, defrost of the evaporator, and a loud rattling sound in the unit. Shortage of oil may be due to a seal leak, a leaky check valve, or needle valve.

If the check valve of the needle valve leaks, the oil will be retained in the system and will find its way to the evaporator. An oil-logged evaporator will be indicated by improper defrosting. If shortage of oil is due to seal leak, the seal must be replaced and sufficient oil added.

Don't add oil, however, until it has been determined for certain that the shortage is due to a leak. A surplus of oil may have collected in the evaporator. This will return to unit when proper adjustments are made.

MORE INFORMATION?

Use Handy Coupon on "What's New" Page of this issue. Use Key No. for fastest service.

for the life of the system...

keep your eye on the LIQUID LEVEL

Let these outstanding Sight Glass features make your job easier—

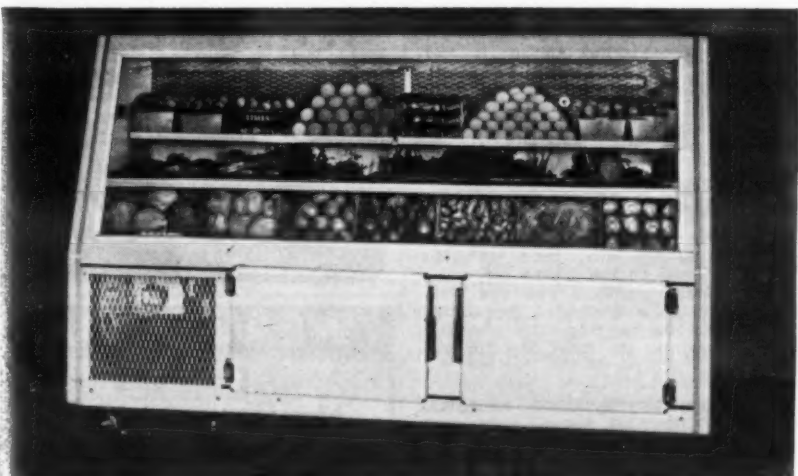
- Tightly assembled and tested at the factory
- Extended tubes which allow silver soldering without disassembly
- Ample vision area
- Specially compounded rubber gaskets
- No special tools needed for installation

All these time, labor and worry-saving features are standard equipment on all Superior Sight Glasses. You should be using them!

Remember to ask for them by name at your local wholesalers—he has them in supply

Superior valve and fittings co.

Pittsburgh 26, Pa.



WARREN'S NEW SLIDING-DOOR DEW-MAKER PRODUCE CASE is a sensational profit maker. This Model CVDS, 60" high, adds 20% extra capacity at no extra cost. During heavy customer traffic the glass doors can be easily removed. The 12" mezzanine shelf can be adapted for dairy products also. Complete details from THE WARREN COMPANY, Incorporated, P. O. Box 1436, Atlanta 1, Georgia.

TO REPLACE

CARBON

TET

FOR

SHOP

USE

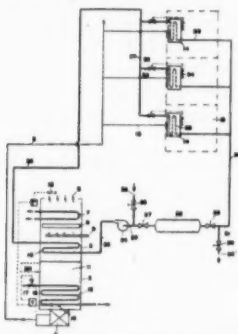


SEE YOUR LOCAL JOBBER

PATENTS

Week of September 11
(Continued)

2,567,758. AIR CONDITIONING METHOD. Carlisle M. Ashley, Fayetteville, N. Y., assignor to Carrier Corp., Syracuse, N. Y., a corporation of Delaware. Application Dec. 1, 1945, Serial No. 632,151. 8 Claims. (Cl. 257-3.)



1. In the method of air conditioning a building structure containing a plurality of enclosed areas, the steps which comprise supplying a quantity of air sufficient for ventilation requirements of the enclosed areas, conditioned air to control its moisture content while varying its sensible heat in accordance with the temperature exteriorly of the building to compensate for transmission gains or losses throughout the enclosed areas, supplying the conditioned air at high static pressure to conditioning units disposed in the enclosed areas, discharging the conditioned air at high velocity within each unit to induce a substantial flow of secondary air within the unit from the enclosed area in which it is disposed, supplying a quantity of conditioning medium at a temperature within the range of 45° F. to 70° F. and selected without regard to the exterior temperature to a heat exchanger disposed in each unit, governing the temperature of the induced air in each unit by passing at least a portion thereof over the heat exchanger, individually and automatically adjusting the temperature of the induced air in each unit to compensate for the effect of the variable sensible heat factors present in the area, mixing the streams of conditioned air and induced air, and discharging the mixture of conditioned air and induced air within the area to be conditioned to maintain a desired temperature therein.

2,567,915. AIR CONDITIONER SYSTEM. Bulo Wayne Smith, Auburn, Ind., assignor to Customaire Engineering Co., Auburn, Ind., a copartnership. Application Dec. 1, 1945, Serial No. 632,151. 8 Claims. (Cl. 257-3.)

Redmond
MICROMOTORS
Prompt shipment!
74 different models in stock
FACTORY DISTRIBUTORS
CYCLO-FREEZE CORP.
2120 S. Lyndale, Dept. A, Mpls. 5, Minn.

WE WILL BUY!
EXPANSION VALVES
SOLENOID VALVES, ALL TYPES
REF. FITTINGS and PARTS
ANY QUANTITIES • MUST BE NEW
Write, Phone Or Call For
IMMEDIATE ACTION
TRACO Industrial Corp.
455 W. 19 St., N. Y. 19, WATKINS 4-4302
(Send for Traco's complete list of sensational bargains)

Subscribe Now

Receive the greatest trade paper in the Industry—AIR CONDITIONING & REFRIGERATION NEWS. Published every week. Brings you latest news and vital information on household refrigeration, commercial refrigeration, air conditioning, home freezers; manufacturing, distributing, retailing, servicing, and contracting. Only \$5 per year, 52 issues.

Fill in coupon and mail today

AIR CONDITIONING & REFRIGERATION NEWS
450 West Fort Street, Detroit 26, Michigan

Gentlemen: Send the NEWS for one year.

☐ \$5 enclosed ☐ Bill me ☐ Bill the company

Name.....

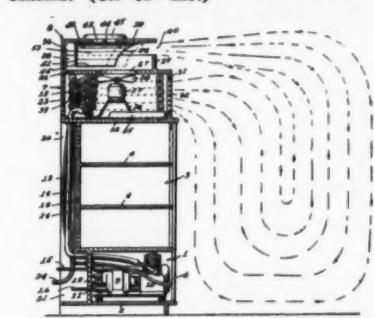
Company.....

Street.....

City..... Zone..... State.....

12-10-51

tion March 1, 1949, Serial No. 79,060. 7 Claims. (Cl. 62-129.)



1. Apparatus for conditioning air comprising a lower compartment provided with an inlet and an upper compartment provided with outlets, said compartments being communicatively connected by a restricted passage, an evaporator adapted to be connected to operating apparatus disposed in the lower compartment, a deflector arranged in the upper compartment and provided with a plurality of deflecting surfaces disposed over the passage, and a means in the lower compartment for drawing air into the inlet for cooling treatment by the evaporator and then forcing it through the passage against the deflecting surfaces and out through the outlets, said deflecting surfaces being constructed and arranged to direct the air substantially horizontally in a fan-like pattern.

AVAILABLE FOR LICENSING OR SALE

General Electric Co. will grant non-exclusive licenses under the following patents, upon reasonable terms, to domestic manufacturers. Applications for license may be addressed to the Manager, Patent Dept., General Electric Co., 1 River Rd., Schenectady, N. Y.

Pat. 1,973,518. Refrigerator Cabinet. Sept. 11, 1934. Reg. No. 44,299.

Pat. 1,992,835. Method of Bending Conduits. Feb. 26, 1935. Reg. No. 44,300.

Pat. 2,084,883. Refrigerating Apparatus. June 22, 1937. Reg. No. 44,301.

Pat. 2,117,861. Evaporator for Refrigerating Machines. May 17, 1938. Reg. No. 44,302.

Pat. 2,249,466. Frost Measuring Device. July 15, 1941. Reg. No. 44,303.

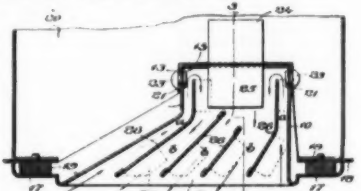
Pat. 2,280,554. Refrigerator Cabinet. April 21, 1942. Reg. No. 44,304.

Pat. 2,531,136. Control Arrangement for Refrigerating Systems. Nov. 21, 1950. Reg. No. 44,305.

Pat. 2,532,816. Air Circulating Arrangement for Refrigerators. Dec. 5, 1950. Reg. No. 44,306.

Week of September 18

2,568,044. AIR DELIVERY DEVICE FOR VENTILATING APPARATUS. George R. Wallen, New York, N. Y., assignor to Anemostat Corp. of America, New York, N. Y., a corporation of Delaware. Application Dec. 30, 1948, Serial No. 63,187. 7 Claims. (Cl. 98-40.)



5. A narrow elongated device of substantially uniform cross section throughout its length for delivery of air from an air supply duct into an enclosure, said device being open at its bottom for flow of air therefrom and comprising a top wall, an inner side wall, an outer side wall, inclined downwardly and outwardly relative to said inner side wall, downwardly and outwardly inclined plates in the lower portion of said device spaced from each other and from the side walls of the device to divided air flowing downwardly through the device into a plurality of separate streams and to deflect the streams laterally outward from the device, said top wall having therein at points spaced apart along its length openings for inlet of air to the device, a valve plate substantially coextensive in length with said top wall superimposed upon said top wall and slidable longitudinally with respect thereto and having therein at points spaced apart along its length openings for alignment and disalignment with and from the openings in said top wall to regulate the amount of air flowing through the device, and an element depending from said valve plate between said side walls for effecting sliding adjustments of said valve plate.

Government Contracts

PROCUREMENT INFORMATION

The following is a list of proposed procurements issued by the various indicated U. S. Government procurement offices. This list is compiled and is available daily on a free pick-up basis. Prospective bidders may obtain complete bid sets by a request to the purchasing office under which the purchase is listed in this Synopsis. Be sure to identify completely the bid invitation you wish by including in your request the item description, the invitation number or reference number and the opening date. This will save time in filling your request. For reasons of economy, specifications are normally not included with the bid invitations unless the specification is a new one. First time bidders on a particular item should request a copy of applicable specifications and drawings at the time the request for a bid is made.

DEPARTMENT OF DEFENSE

It is not necessary to refer solely to the issuing office for additional data on a bid invitation issued by any of the following U. S. Army Ordnance Offices: Ordnance Tank Automotive Center; Detroit Arsenal; Frankford Arsenal; Picatinny Arsenal; Raritan Arsenal; Rock Island Arsenal; Springfield Arsenal; Watertown Arsenal; and Watervliet Arsenal. Complete information on any purchase listed by any of these offices alone can be obtained from the Ordnance District Office nearest you. Its address is on file in your nearest Department of Commerce Field Office. Do not ask an Ordnance District Office for information on a purchase unless it is listed by one of the above-named offices. Ordnance District Offices do not have information on any other purchases.

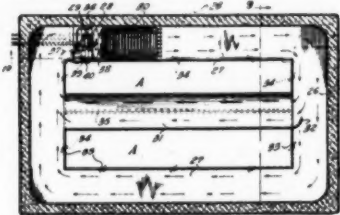
Invitations for Bids numbers will be followed by the letter "B." Requests for proposals or quotations will be indicated in this column by the letter "Q" or, if numbered, the number will be followed by the letter "Q."

Description	Quantity	Invitation No.	Opening Date
Commandant Of The Marine Corps, Washington, D. C. Attn: Supply Dept., Procurement Section			
Coolers, drinking water, electric, type I, to be bubbler style, size 10—specs	1500 ea	452 B	19 Dec 51
Coolers, drinking water, electric, type III, to be cafeteria style, size 30—specs	200 ea	452 B	19 Dec 51
Commanding Officer, Naval Supply Depot, Mechanicsburg, Pa. Thermometer, dial, per Navy spec 18-T-13, class B, prior approval required	400 ea	72-20789 B	17 Dec 51
Commanding Officer, Watertown Arsenal, Watertown, Mass. Attn: Procurement Officer Pressure gage, in accordance with Fed spec TT-E-485B dated 12-29-47	661 ea	52-112 B	26 Dec 51
District Engineer, St. Louis District, Corps Of Engineers, St. Louis 1, Missouri Valve, brass, 300 lb. pressure threaded, globe, plug disc, 1 1/2 inch, crane No. 382P or equal	500 ea	(ENG-23-065-52-397B)	17 Dec 51
Check valve section, pipe line, portable, consisting of 1 gate	50 ea	(ENG-23-065-52-400B)	14 Dec 51

from said valve plate between said side walls for effecting sliding adjustments of said valve plate.

the crossbar is securely anchored in the outside frame.

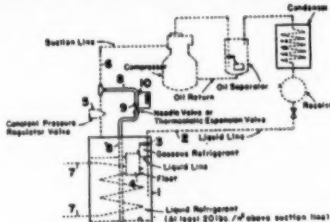
2,568,268. HUMIDITY CONTROL APPARATUS FOR REFRIGERATORS. John S. Booth, Dallas, Tex.



1. In a walk-in type refrigerator, a storage compartment, a door therefor, a continuous air circulating duct in juxtaposition to the side and end walls of said refrigerator adjacent the top thereof, a longitudinal duct disposed between and parallel with the portions of said air circulating duct lying along the side walls of said refrigerator and effecting communication between the portions of said air circulation duct lying along the ends of said refrigerator, said continuous and longitudinal ducts being in thermal contact with said storage compartment but normally out of communication therewith, a refrigerating coil in said continuous duct, means for circulating air in said ducts and means for admitting limited quantities of cold air into said storage compartment from said continuous duct to dispel excess moisture condensation set up by ingress of external air into said storage compartment.

Week of September 25

2,568,711. OIL RETURN IN REFRIGERATOR. John Bosi, Philadelphia, Pa.



1. In a refrigerator having an oil-lubricated compressor and a condenser for liquefying a gaseous refrigerant, a heat exchanger in which the liquefied refrigerant is evaporated, a suction line leading from the heat exchanger to the compressor, and means in the suction line for maintaining a constant pressure on the refrigerant in the heat exchanger, means for transferring oil collected in the exchanger back to the compressor comprising a tube communicating at one end with the heat exchanger near the bottom thereof and at the other end with the suction line between the means for maintaining constant pressure and the compressor, said tube having a regulating valve therein remote from the compressor for controlling the fluid flow through the tube.

2,569,009. REFRIGERATING APPARATUS FOR VEHICLES. Leon L. Kuempel, Cincinnati, Ohio.

1. In combination with a bus having a passenger compartment and an engine compartment at the rear of the bus and having a bus engine located in the central rear portion of the engine compartment, air conditioning apparatus disposed within said engine compartment and comprising a self-contained portable refrigeration unit mounted on one side of the bus engine and a self-contained portable prime mover mounted on the opposite side of said bus engine, a jack shaft supported

valve and 1 check valve, fabricated into a 20 ft. section of pipe, grooved for couplings, complete with adapters, couplings, gaskets and bolts, 6 inch. spec. Valve sections for portable pipe lines. Couplings to conform to military Spec. Mil-P-10387A. Dated 21 May 1951, except gasket to be minus 40 degrees F UMPLA.

Officer In Charge, Navy Purchasing Office, Washington, D. C.
Indicator, thermometer. 522 5613A-B 27 Dec 51
Specifications, MIL-P-6064A
AN-P-13A MIL-D-5028 AN-M-13A MIL-H-5474A, drawing AN-5792.

Indicator, temperature, drawing MS-28006. Specifications, MIL-I-7076 MIL-B-6836
MIL-N-336 MIL-D-5028 AN-M-13A MIL-H-5474A and SR-171.

District Public Works Office, Eleventh Naval District, San Diego, California
Air conditioning Building 313 SPEC 30860 28 Dec 51
NAAS, El Centro, California.

GENERAL SERVICES ADMINISTRATION

Description	Quantity	Reference No.	App. Bid Date
General Services Administration, Seattle, Washington Refrigeration equipment, 15 small items.	15	E-S-2629-1	12-14-51
General Services Administration, Public Assistance Office, Rm. 528, U. S. Court House, Chicago 4, Illinois Refrigerators, household and commercial type	258 ea	CHD-1012	12-26-51

U. S. DEPARTMENT OF COMMERCE

National Advisory Committee For Aeronautics, Lewis Flight Propulsion Lab., Cleveland, Hopkins Airport, Cleveland, Ohio
Unit, air conditioning, five horsepower, NACA. C-3201 12-17-51

CONTRACTS AWARDED AS OF NOV. 29, 1951

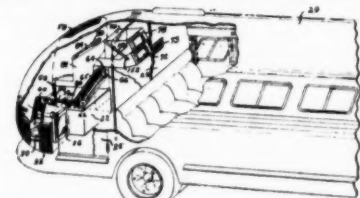
Description—Contractor and Address

Officer In Charge Of Construction, Sixth Naval District, P.O. Box 365, Naval Base, South Carolina
Replacement of existing exhaust fans for galley range heads (2nd Increment). U. S. Marine Barracks, Camp Lejeune, N. C. \$71,580.—Reynolds Blower and Metal Co., P.O. Box 232, Hickory, N. C.

Dept. Of The Navy, Bureau Of Ships, Washington 25, D. C.
Blowers, centrifugal.—176 ea., \$167,503.—ILG Electric Ventilating Co., Chicago, Ill.

Department Of Commerce, Maritime Administration, Washington 25, D. C.
Electric fans.—1,720 ea., \$52,300.—Westinghouse Electric Corp., 1625 K St., N. W., Washington, D. C.

by said bus above said prime mover on the one side of the bus engine, first belt means drivingly connecting said prime



(To Be Continued)

TYPHOON

Specialists in Packaged
AIR CONDITIONERS
1 1/2 TO 20 TONS
Evaporative Condensers
3 TO 20 TONS

Backed by more than 40 years of air cooling experience
TYPHOON Air Conditioning Co., Inc.
794 Union Street, Brooklyn, N. Y.

AIRO stands for

Fast, dependable, world-wide service.
Refrigeration and Air Conditioning parts and supplies.
Write for current Catalog

AIRO SUPPLY CO.
2732 N. Ashland Ave., Chicago 14, Ill.

WE WILL BUY!

SURPLUS REFRIGERATION CONTROLS PRESSURE AND THERMOSTATIC
ANY QUANTITIES • MUST BE NEW
Write, Phone Or Call For IMMEDIATE ACTION
TRACO Industrial Corp.
455 W. 19 St., N. Y. 19, WATKINS 4-4302
(Send for Traco's complete list of sensational bargains)

ACRMA-REMA Survey of Compressor Shipments for August

ACRMA-REMA STATISTICAL PROGRAM

SUMMARY OF SHIPMENTS OF COMPRESSORS FOR MONTH OF AUGUST, 1951

(Number Manufactured and Sold for Refrigerants Other Than Ammonia)

Horsepower	SEALED TYPE (Hermetic or Closed) FORM A					OPEN TYPE, AIR COOLED FORM B					OPEN TYPE, WATER COOLED FORM C				
	Continental U. S.	Non-Continental U. S.	Total	Export	Grand Total	Continental U. S.	Non-Continental U. S.	Total	Export	Grand Total	Continental U. S.	Non-Continental U. S.	Total	Export	Grand Total
	Mfrs. (N)	Mfrs. (O)	(P)	(Q)	(R)	Mfrs. (N)	Mfrs. (O)	(P)	(Q)	(R)	Mfrs. (N)	Mfrs. (O)	(P)	(Q)	(R)
Sold In Unitary (End-Use) Products															
1/2 and less...	XX	XX	21,783	738	22,521	XX	XX	*	*	XX	XX				
3/4	XX	XX				XX	XX	*	*	XX	XX				
1	XX	XX	6,301			XX	XX	*	*	XX	XX				
1 1/2	XX	XX				XX	XX	*	*	XX	XX				
2	XX	XX				XX	XX	*	*	XX	XX				
3	XX	XX				XX	XX	*	*	XX	XX				
5	XX	XX				XX	XX	*	*	XX	XX				
Sub-Total	XX	XX	34,242	1,074	35,316	XX	XX	* None	*	XX	XX				
Sold as Compressor Bodies, Compressors, or Condensing Units															
1/2 and less...	633					596				1,276					
3/4															
1	667					3,467	1,259	6,936	792	10,051	34	220	254	250	1,180
1 1/2							1,064		706						
2	80,175		82,285	7,096	89,381		550		341		209	186	676		
3						663	399	1,062	181	1,243		281			
5						116	276	392	60	452		192			
Sub-Total	80,175	2,110	82,285	7,096	89,381	4,362	4,486	8,848	3,586	12,434	441	1,527	1,968	440	2,408
Grand Total	XX	XX	116,527	8,170	124,697	XX	XX	* 3,586	*	XX	XX				

*Figures omitted to avoid disclosure of operations of individual companies. Notes: Totals shown above do not include compressor bodies shipped for or incorporated in Household Refrigerators. In order to avoid disclosing the operations of individual companies, some data for two or more sizes of units are combined.

Reporting companies: Airtemp Div., Chrysler Corp.; Baker Refrigeration Corp.; Brunner Mfg. Co.; Carrier Corp.; Curtis Refrigerating Machine Div. of Curtis Mfg. Co.; Frigidaire Div., General Motors Corp.; General Electric Co.; General Machine & Mfg. Co.; Kelvinator Div., Nash-Kelvinator Corp.; Lehigh Mfg. Co., Div. of Lehigh Foundries, Inc.; Lynch Corp.; Mills Industries, Inc.; Norge Div., Borg-Warner Corp.; Servel, Inc.; Tecumseh Products Co.; Universal Cooler Div., Tecumseh Products Co.; Westinghouse Electric Corp. (Springfield and Hyde Park [Boston], Mass.); Worthington Pump & Machinery Corp.; York Corp.

McQuay Appoints Bayer Assistant to Sales Mgr.

MINNEAPOLIS — Appointment of A. B. (Bill) Bayer as assistant to the general sales manager of McQuay, Inc. has been announced by H. Blake Thomas, vice president in charge of sales.



A. B. Bayer

A mechanical engineering graduate, Bayer's 15 years of refrigeration experience has been gained in all phases of product distribution. He was sales manager of Coldew Mfg. Co., California refrigeration manufacturer; he has managed the refrigeration and air conditioning departments of W. A. Ramsay, Ltd., Honolulu distributor; and most recently he was a factory representative for Schaefer, Inc.

In his new position, Bayer will coordinate the activities of the McQuay refrigeration sales representatives. He will also contact wholesale and manufacturing accounts.

Current Literature Available

To obtain further information on the literature listed below, please refer to key number preceding listing. Please use the "Information Center" form on "What's New" page.

Recold Pocket Data Book Ready for Distribution

—KEY NO. M-1220—

LOS ANGELES—The new Recold Pocket Data Book, seen for the first time at the All-Industry Show in Chicago, is now ready for distribution, according to Harry Quinn, director of sales for Refrigeration Engineering, Inc.

Recold claims the book, devoted exclusively to low side refrigeration, is the first of its kind to be introduced by any coil manufacturer.

The pocket size (3 1/2-in. by 7-in.) book contains 52 pages of commercial refrigeration and air conditioning equipment data and engineering information.

In addition to containing complete data on the full line of Recold equipment, the book has many pages devoted to factual information that shows how to figure refrigerator loads of various dimensions, for boxes using either 4 in. or 6 in. of insulation.

Copies may be had free upon request. The books will also be available at all Recold distributors soon.

Acme Catalog Covers Flow-Temp Convectors

—KEY NO. M-1221—

JACKSON, Mich. — Acme Industries, Inc. has published a new catalog on "Flow-Temp" convectors number FC-210.

This new unit was designed for use with "Flow-Cold" systems for summer air conditioning, or to be used with heat pump systems for year-round air conditioning. It is also adaptable with boiler systems for this latter use.

Chief advantage is said to be that it has only one basic assembly for all types of installations. The same basic unit can be wall mounted, wall recessed, semi-recessed, ceiling suspended, or floor mounted.

"Dealers no longer have to carry the extensive inventory of convectors in all models and for all uses as they did formerly," the company said.

The units have over-sized slow speed blowers and spun glass insulation. Every room has individual controls (three speeds) with a constant

supply of clean air. Only electrical and water connections are required.

Three basic models are available. All units are 10 1/2 in. in depth, 24 in. high. The CV-7 is 26 1/2 in. wide; the CV-12, 34 1/2 in. wide; and the CV-18 58 1/2 in. wide.

Cooling capacities with 46° F. water "on" at medium speed are: for the CV-7, 7,200 B.t.u. per hour; CV-12, 12,000 B.t.u. per hour; the CV-18, 18,000 hourly B.t.u.

Capacity for heating at 180° F. water "on" at medium speed is CV-7, 15,700 B.t.u.; CV-12, 26,000 B.t.u.; and CV-18, 39,000 B.t.u. per hour.

Titchener Book Discusses Use of Wire, Wire Parts

—KEY NO. M-1222—

BINGHAMTON, N. Y. — An illustrated 16-page technical handbook containing detailed information and engineering data for persons concerned with the design, purchase, or production of any wire part or wire product has been issued by E. H. Titchener & Co. here.

The booklet is called "Use of Wire Construction in Product Design."

Among the subjects covered are: Types of steel wire, steel wire sizes and comparison of gauges, automatic wire forming, resistance welding, plating and finishing, and technical data on wire and treatments, threading, formings, and flattening.

The booklet will be very useful when a redesign of a metal part is being considered to replace expensive casting, forgings, or stampings.

ACP Reference List Covers Protective Coats for Metal

—KEY NO. M-1223—

AMBLER, Pa. — Quick reference list of metal protective and paint bonding chemicals and processes has been prepared by American Chemical Paint Co. here for fabricators of steel, zinc, and aluminum products.

Designated as File No. 15-E, the leaflet briefly describes the various materials and processes and shows how they are employed for various purposes on several metals.

Admiral Corp. Wins Preliminary Injunction Against Penco Stores

ROCHESTER, N. Y. — U. S. District Judge Harold P. Burke has issued a preliminary injunction restraining Penco Stores Inc., 30 South Ave., from selling household appliances represented as products of Admiral Corp.

Admiral contended in its petition for an injunction that Penco Stores "has been selling electric sewing machines and vacuum cleaners under the trade-mark Admiral." The plaintiff firm also has filed a complaint charging the local store with trade-mark infringement and asking triple whatever damages may be assessed.

The Penco firm contends the word "Admiral" is too general to permit exclusive copyrighted use by any firm and has cited the existence of many other products on the market today or in the past which have used the name as a trade-mark.

In his injunction, Judge Burke ordered that the Penco firm be restrained from selling electric vacuum cleaners and sewing machines by representing "either directly or indirectly or by implication that such articles originate with the Admiral Corp."

Maytag Ironer Model Price Up

NEWTON, Iowa — Maytag's model B ironer, formerly priced at \$199.95, now carries a price of \$213.95.

UsAirco Names Exclusive Canadian Representative

MINNEAPOLIS — The Creamery Package Mfg. Co. of Canada, Ltd., has been named exclusive Canadian representative of the United States Air Conditioning Corp. here.

The Canadian concern, which has its main office in Toronto and maintains a nationwide sales and service staff, will handle the complete line of UsAirco air conditioning, heating, and ventilating equipment.

Formed in 1934 as a subsidiary of the American company of the same name, the firm is managed by Harry Nellist and specializes in refrigeration and dairy equipment.

JUST ASK US

For "easy-to-get" product information... use coupon on "What's New" page.

ENGINEER JR. MECHANICAL

To do laboratory work and run tests on heat transfer equipment. Permanent position. Write giving past experience and salary expected.

KENNARD Corporation
1819 SO. HANLEY RD.
ST. LOUIS 17, MO.

CLASSIFIED ADVERTISING

RATES for "Positions Wanted" \$5.00 per insertion. Limit 50 words. 10¢ per word over 50.

RATES for all other classifications \$7.50 per insertion. Limit 50 words. 15¢ per word over 50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other addresses by actual word count. Please send payment with order.

POSITIONS WANTED

PURCHASING AGENT—Executive assistant desires permanent position with a progressive manufacturer or distributor of refrigeration or air conditioning products in New York City area. Formerly with nationally well known manufacturers of freezers, refrigerators, display cabinets and soda fountains. Over 10 years procurement experience steel, other metals, numerous refrigeration component parts. Familiar with suppliers and products related to this industry. Age 34, family man, alert and very capable. Highest references. Starting salary requirements \$6200-\$7500 per year. Available immediately. BOX 3875, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

FIELD ENGINEER—popular manufacturer of automatic control valves for refrigeration, air conditioning, and heating. Will contact manufacturers in connection with the development of new products. An opportunity in a progressive organization for a man with initiative and imagination who can effectively work with people. Engineering background with experience in above field required. Write BOX 3867, Air Conditioning & Refrigeration News, giving complete information including age, education, experience, responsibilities, earnings, etc.

SALES ENGINEER—Position with young aggressive Frigidaire commercial dealer in Detroit area. Excellent opportunity to get in on the ground floor with our expanding program. Salary, commission and expenses. Write for appointment giving brief history and enclose snapshot of self. All correspondence strictly confidential. Write BOX 3871, Air Conditioning & Refrigeration News.

AIR CONDITIONING salesman, top rank only. Wonderful opportunity for experienced man to make better than \$12,000 yearly. Wealthy metropolitan area, little competition, plenty of sound leads from continuous advertising. We pay for interview, so you have everything to gain by writing full details to BOX 3872, Air Conditioning & Refrigeration News.

INTERESTED IN aggressive combination sales and service distributors throughout country for established line of truck and trailer refrigeration, combining cooling and heating cycle. Contact desirable in trucking industry. Rapidly growing field. Good profit. Give full details of your sales and service facilities. BOX 3876, Air Conditioning & Refrigeration News.

PRODUCT ENGINEER. Large nationally known refrigeration and air conditioning manufacturer in East needs product engineer with previous experience in design of self-contained air conditioning units, sizes 3 to 15 horsepower. Will re-style line, expand and continually develop package unit for more effective manufacture. Reports directly to chief engineer and in charge of engineering of this product. Write BOX 3877, Air Conditioning & Refrigeration News, giving resume of experience, education and salary expected.

CHIEF ENGINEER. Large nationally known refrigeration & air conditioning manufacturer in East has position open for experienced engineer to head depart-

ment. Executive and technical abilities essential to direct designs of self-contained air conditioning units, air handling equipment, condensers, coils, large size condensing units, and related refrigeration equipment. Write BOX 3878, Air Conditioning & Refrigeration News, giving resume of experience, education and salary expected.

REPRESENTATIVE REQUIRED by one of refrigeration leaders for overseas assignment. Knowledge Spanish or French desirable. Applicant should have experience in distribution of appliance and commercial products, also ability to appoint and supervise dealers. Furnish experience, age and salary. Applications treated strictly confidential. BOX 3879, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

BARGAIN: PATTERSON 160 ton dry expansion water cooler, 500 GPM, three "Freon" circuits, 4 tube passes per circuit, 30" diameter, 182" long, A.S.M.E. stamped, used less than three months and guaranteed to be in perfect condition, new cost \$5600.00, will sell outright or trade for good merchandise. GORDON LOZIER REFRIGERATION CORPORATION, 1612 California, Omaha, Nebraska.

REFRIGERATOR EQUIPMENT for sale. Three blowers, models 1506-124, 1616-214, 1507-433; 1 condenser, model 906-159; 2-10 hp. Worthington compressors; track conveyors for chill room; sheep hind and fore quarter hooks; 2 Cramer Coolmasters, model 97. Excellent condition. Prices available upon request. OTTO SEIDNER, Westerly, R. I.

FOR SALE—Standard makes new hermetic units—static & fan-cooled cond. 1/4, 1/2, 3/4, 1, 1 1/2. Open units 1/4, 1/2. Relays and overload protectors. Driers, T.X.V. valves, pressure controls, belts, fittings. Water-cooling coils for carbonated water. Send for your lists and prices on our many other parts and supplies at great savings. Sold on money back guarantee. WALTER W. STARR, 2833 Lincoln, Chicago, Ill.

BUSINESS OPPORTUNITIES

FOR SALE: Well established commercial refrigeration business located in Central Florida and handling only national known brands. Easy terms can be arranged. BOX 3850, Air Conditioning & Refrigeration News.

ESTABLISHED AIR conditioning business in hottest middle west territory, medium large city with 23 high potential counties. Excellent location and lease, many fine prospects for 1952. I do not need the money, so little cash is needed. Buy this profitable business with your credit. Priced to sell quickly as owner has other interest. Give your financial standing and credit in first letter to BOX 3873, Air Conditioning & Refrigeration News.

MISCELLANEOUS

SURPLUS STOCK copper type L hard new pipe and fittings. All sizes & style fittings up to 4". Special reducing tees in all combinations. Will ship any quantity. Also several used coils in excellent condition 3 to 15 ton DX or water. All subject to prior sale. GENERAL AIR CONDITIONING, 804 N. Sheridan, Peoria, Illinois.

NORGE SEALED units remanufactured or exchanged. Immediate delivery from stock, 1 year warranty. Write for prices and shipping instructions. Genuine Norge terminals for Norge sealed units. Complete set of three, \$1.15 plus postage. MODERN REFRIGERATION CO., INC., 12541 E. McNichols Road, Detroit 5, Michigan.

Stores More in Less Space... Cools Faster!

Speed-Freeze

bottle beverage coolers

write

IDEAL COOLER CORPORATION
2953 EASTON AVE., ST. LOUIS 6, MO.

WE WILL BUY!

SURPLUS REFRIGERATION UNITS
BELT-DRIVEN HERMETICS
1/8 H.P. to 10 H.P.

ANY QUANTITIES • MUST BE NEW
Write, Phone Or Call For IMMEDIATE ACTION
TRACO Industrial Corp.
435 W. 19 St., N. Y. 19, WATKINS 4-4302
(Send for Traco's complete list of sensational bargains)

ASRE Hears of Metals Outlook, Residential Cooling Boom--

(Concluded from Page 1, Column 2)

There were two other special conferences: one on packaged air conditioners, the other on insulation, held during the three-day meeting.

In addition, the first technical session to open the events Monday morning, Dec. 3, was a symposium devoted to low temperature applications and problems in various fields.

On the subject of shortages, "it is a fairly simple matter to describe the present aluminum situation—there just isn't enough of it available to take care of all the demands," declared John R. Willard, manager of sales development for the Aluminum Co. of America.

ALUMINUM FUTURE GOOD

"The future picture is considerably more optimistic," he assured the group. "The government has authorized increase in the aluminum industry's primary smelting capacity of about 85%. Approximately 1.3 billion pounds of new capacity will be added, raising the nation's total to well over 2.8 billion pounds. This increase, incidentally, will be entirely financed by private industry.

"Assuming that the entire expansion plan is carried to completion, and construction proceeds on schedule, production in 1952 should set an all-time high of more than 2 billion pounds, or about 10% higher than the peak achieved during World War II. This new record will be of short duration, however, because 1953 should shatter the old record and 1954 may reach a figure of 1 billion pounds above the World War II peak.

"It is impossible to predict," Willard said, "just how much of this vast increase will be channeled into civilian production, but barring an all-out military effort, it seems logical to expect that the present shortage will be greatly improved if not actually cured by the latter part of next year."

COPPER PROSPECTS IMPROVED

Similar optimism on the long-range prospects for improved copper supplies was expressed by Milton F. Meissner, associate director of Western Brass Mills, who tagged as "propaganda" the reports from Washington that copper resources are dwindling to the extent that permanent substitutes must be found.

"There is more copper now known to be in the ground than ever before. Reserves are more than adequate," Meissner asserted.

Present plans for increasing copper

production will boost the United States output 400,000 tons by 1954, approximately a 25% increase over the 1,500,000 tons used in the country during 1950, he indicated. And that production boost equals the present shortage.

"By 1954, then, copper will be in sufficient supply for all military needs, short of all-out war, as well as pre-Korea civilian needs," Meissner predicted.

In commenting on the over-all problem of using alternate materials in appliance production, F. L. Tarleton of Hotpoint volunteered that "to outsmart the 'confusionists' in Washington, we have tooled up three or four ways on some items to use different materials.

"This costs more but models don't change as rapidly so this cost can be written off over a longer period. This way we haven't lost a single item since the war except due to allocations."

The problem of material shortages also came up at the Packaged Air Conditioner Conference, which attempted "a look into the future."

"Keynote" William B. Henderson, executive vice president of Air Conditioning & Refrigerating Machinery Association, would make no guess as to immediate prospects for increased production, but indicated that "the long-term outlook for the industry cannot be other than optimistic."

1,600,000 HOMES MAY BE COOLED

"One of our industry's leaders said recently, 'I would hazard a guess that within the next five years, granted freedom from war or major depression, we will see more than 1,600,000 American homes enjoying either partial or complete air conditioning,'" Henderson commented.

He also reviewed the growth of the packaged air conditioner from the 13,350 shipped in 1938 to the 250,000 shipped in 1950. The latter comprises 193,807 room units and 56,047 of the larger package models.

Growing importance of the residential market was indicated by Henderson's statement that "in 1951, over 70% of the room air conditioners sold were purchased by individuals for use in residences and apartments. The majority of these were installed in bedrooms."

Most of the air conditioner conference, however, was devoted to discussions of design requirements for packaged units, several speakers pointing out the problems to be solved.

For example, Paul B. Moore, assistant chief development engineer with York Corp., pointed out that the basic design requirements for room units are (1) the mechanical design to meet performance standards at low prices, and (2) the product design, which involves "the creation of features that make the merchandising people happy and broaden the usefulness of the product in the eyes of the buying public."

Among the various considerations, he said, was the reduction in noise level of the units, reducing their size, eliminating of condensate, sweating on the room side, control of conditioned air supply, and improving the appearance of the units.

HUMIDITY CONTROL ANALYZED

Discussing the larger package units, Ralph Gonzalez of Chrysler Airtemp also brought up questions of size, noise level, appearance, and cost, adding that "humidity control with capacity reduction and reheat options is definitely desirable for many applications and in some areas of the country. It is well to recognize that humidity control is less of a problem in the low summer humidity areas. However, the high summer humidity areas are so important, marketwise, that the incorporation of some form of humidity control as a standard or optional feature can be expected to increase."

When W. A. Grant, director of research for Carrier Corp., stated that in considering year-round packaged air conditioners for residential use "maybe we should forget the 70° in winter and 80° in summer design

conditions in favor of 75° all year around," he touched off considerable discussion following the formal presentation of the papers.

Grant himself may have summed up the problem after various comments had been made with the statement: "In practical applications of air conditioning it has been found that the thermostat is usually set between 73° and 76° to eliminate complaints from the occupants."

(More details on this and various other technical papers and discussions presented at the meeting will appear in future issues of the NEWS.)

WOLVERINE AWARD GIVEN

At the final session Wednesday morning, the Wolverine award for the best paper was presented to D. D. Wile, a previous winner of this same award.

Charter for the new Indianapolis section was also formally presented then, being received by Frank Langsenkamp, Jr., section director, and W. E. Spridgeon, chairman.

Last event was the induction of the new officers for the society: Edward Simons, president; Richard C. Jordan and Arthur J. Hess, vice presidents; Donald K. Tressler, treasurer; and six directors who included D. D. Wile, Walter A. Kuenzli, Howard H. Peterson, John M. Lambert, H. C. Diehl, and James R. Hornaday.

Entertainment-wise, the New Orleans section went to considerable effort to arrange successfully such events as the Tuesday night costume party and dinner-dance, visits and tours through the famed French Quarter, and a cruise in the harbor for the ladies, in addition to inspection trips of a sugar refinery and air conditioning installations.

U. S. To Aid Plants--

(Concluded from Page 1, Column 3)

who are having difficulties finding mills to fill orders for steel, copper, and aluminum under CMP. NPA said it would help any non-defense manufacturer to place his order, provided the manufacturer has tried "repeatedly" to place it himself.

In its program for putting idle capacity into production, the DPA said it would limit its help to idle facilities with a value of more than \$1 million, including the cost of machine tools.

When it finds idle capacity which might be used in producing military goods, the DPA will notify military procurement officials. Then if the manufacturer gets a defense contract, he would get Defense Department priorities for scarce materials and component products.

The DPA job of checking into such matters will be done by a Facilities Review Board which will offer aid to plants already shut down as well as to plants facing impending shutdowns.

In the NPA program for special assistance on hard-to-get materials, a new special form, NPA Form 148, must be filled out by manufacturers in applying for aid. In addition to allotment symbols and records, the form will require the manufacturer to state what he's done toward trying to place orders under CMP.

Manufacturers must exert every effort to place orders before applying for aid, and those trying to order from warehouses must show that they have made "repeated efforts" to get supplies, since many warehouses get their supplies on a day-to-day basis.



here's the secret!

WHY PENN WATER VALVES STAY ON THE JOB LONGER

It's really very simple... yet so very effective. PENN's unique design incorporates two nylon-reinforced synthetic rubber diaphragms (shown in the cut-away view) to keep water out of the bellows, range spring and sliding parts.

Thus, these important "working parts" are free from the destructive effects of sedimentation and abrasive deposits which cause premature wear and water valve failure.

But that's not all! The scientific design of the PENN Series 246 water valve eliminates water hammer... sticking of seats... need for lubrication. And, it is highly sensitive to changes in refrigerant head pressures to assure highest efficiency.

These better PENN Series 246 water valves are built in sizes from 3/8" to 2 1/2" and in flanged or threaded styles. Ask your wholesaler or write **Penn Electric Switch Co., Goshen, Indiana**. Export Division: 13 E. 40th Street, New York 16, N. Y., U.S.A. In Canada: Penn Controls Limited, Toronto, Ontario

EXTRA FEATURE

Easy Manual Flushing

The PENN Series 246 water valve may be flushed manually by inserting screwdriver, or similar tool, under the main spring and prying it upward (away from valve body).





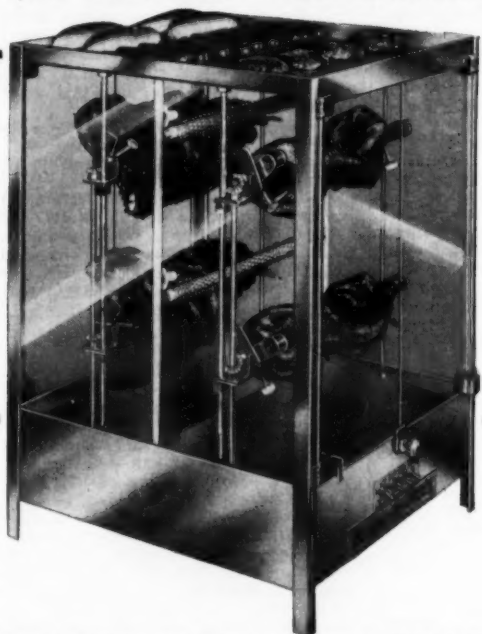
Penn

AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, PUMPS, AIR COMPRESSORS, ENGINES, GAS RANGES

SELL BARBE-CUTIE

THE NEW INFRA-RED BARBECUE ROASTING MACHINE
IT'S RED HOT FOR ADDITIONAL PROFITS!



SELL TO
RESTAURANTS
SUPER MARKETS
HOTELS
TAVERNS
DRIVE-INS
POULTRY STORES

Capitalize on the public demand for Barbecue products—Chickens, Lamb, Beef, Ham, Pork, Spare Ribs, etc.

IT'S RED HOT WITH FEATURES!

- Full Visibility on all Four Glass Sides.
- Imagine 8 CHICKENS at one time (or 4 chickens and 2 Roasts) 4 speed skewers.
- Compact In Size, taking only 2 1/3 square feet of space 17" x 20" x 27" high.
- 2 Motors For Safety, When one motor ceases to function the other motor still keeps the machine in operation.
- Infra-Red Elements, only 2,000 watts assuring low cost operation.
- Cupped Prongs, no tying or stringing.
- Constructed of Heavy Gauge Aluminum.

LIST PRICE

\$395.00

DEALERS: CHOICE TERRITORIES AVAILABLE
ACT TODAY — WRITE! — PHONE! — WIRE!

BELL ENGINEERING COMPANY

BUILDING 21 • P.O. BOX 686 • OPA LOCKA, FLORIDA